

WR-Teen  
Pregnancy

## FACT SHEET ON BIRTHS TO OUT-OF-WEDLOCK TEEN PARENTS

The surge in births out of wedlock to teen parents is an urgent problem.

o During the past three decades, births out of wedlock to teen parents have quadrupled, from 92,000 in 1960 to 368,000 last year. In this same period, non-marital births to teens age 15 to 19 have risen from 15 percent of all births in this cohort to 69 percent of all such births.

o In just five years, 1986 to 1991, the overall rate of births to teens increased by 24 percent. The U.S. rate of births to teens aged 15 to 19 is now twice as high as that of any other industrialized nation, and five to ten times as high as in most European countries.

o Almost 80 percent of the children born to unmarried teenage high school dropouts live in poverty. In contrast, the poverty rate is only 8 percent for children of young people who defer childbearing until they are graduated from high school, twenty years old, and married.

o Even after correcting for income differences, the children born to unmarried teenage parents experience higher rates of educational and emotional problems, are more likely to commit crimes, and are less likely to be employed. In addition, the children born to unmarried teen parents are more likely to become unmarried teen parents in turn.

80%  
o Cases headed by unwed mothers accounted for about four-fifths of the growth of 1.1 million families in the welfare rolls over the past ten years.

o More than three-quarters of teen mothers will be on AFDC at some point during the five years following the birth of their child.

- / o 40 percent of families headed by never-married mothers remain on AFDC for more than 10 years.

o The annual cost to taxpayers to assist families begun by teenagers is now about \$34 billion.

## PROMISING PROGRAMS TO FIGHT TEEN PREGNANCY

### Postponing Sexual Involvement

- o Implemented in Atlanta public schools since 1983 by the Grady Memorial Hospital.
- o By the end of the 9th grade, one third fewer of the youth who participated in the program had begun having sex that had nonparticipants.
- o Pregnancies were also reduced by one-third.

### Preventing Adolescent Pregnancy

- o Implemented in four cities under the sponsorship of Girls Incorporated (formerly Girls Clubs of America).
- o Only 4.8% of young women who participated in two or more program components reported becoming pregnant during the prior 12 months, compared with 12.3% for nonparticipants.

### Teen Outreach

- o Implemented in several cities, typically through a collaboration between local Junior League chapters and public schools.
- o Program participants experienced lower rates of suspension, course failure, dropping out of school, and pregnancy (or causing pregnancy).

### The Self Center

- o Implemented in Baltimore schools under the leadership of the Johns Hopkins School of Medicine.
- o On average, program participants experienced significant delays in the onset of sexual activity.
- o Program participants showed a significant decline in pregnancy rates over the full 28 months of the program, versus a significant increase for nonparticipants during the same period

These summaries and data are drawn from Brent C. Miller et al., Preventing Adolescent Pregnancy: Model Programs and Evaluations (Sage Publications, 1992).

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# PREVENTING ADOLESCENT PREGNANCY

*Model Programs and Evaluations*

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## *An Information and Skills Approach for Younger Teens*

### *Postponing Sexual Involvement Program*

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This chapter discusses the evaluation of a hospital-based outreach educational program that has been successful in helping youth from low-income families postpone sexual involvement. The program's two components, entitled *Human Sexuality*, and *Postponing Sexual Involvement: An Educational Series for Young Teens*, have been implemented in a local public school system since 1983 by the Henry W. Grady Memorial Hospital in Atlanta, Georgia. The initial funding used to present the two components and to evaluate their effect on sexual behaviors of the hospital's adolescent population was granted by the Ford Foundation. The positive findings from the evaluation led to permanent adoption of the program by the hospital and the school system. The *Postponing Sexual Involvement Educational Series* is now being disseminated throughout the United States as an abstinence model for young teens.

The Henry W. Grady Memorial Hospital serves the indigent population in the two most populous counties in Georgia. Beginning in 1977, through an agreement with the largest of the area's four school systems, the hospital began giving a five-class-period outreach education program

entitled Human Sexuality to all eighth-grade youth in that system. This program was designed to provide youth with basic factual information and decision-making skills related to reproductive health, including knowledge about contraceptives and how to use them effectively. An evaluation carried out in the early 1980s (Howard, 1988), however, indicated that such a program by itself was not effective in reducing the rate of sexual involvement or teen pregnancy. Therefore, in 1983 a five-class-period experientially oriented Postponing Sexual Involvement component was added. The purpose was to give youth more skills in using the information provided through the previously developed knowledge-based program. In particular, the Postponing component was designed to improve the ability of youth to deal with social and peer pressures that lead them into early sexual involvement.

The Postponing Sexual Involvement component was based on the social influence model, which holds that youth are more likely to engage in negative health behaviors because of social and peer pressures rather than lack of knowledge about the harmful effects of such behaviors (McAlister, 1980). For example, when asked why many teenagers do not wait to have sexual intercourse until they are older, 61% of the 1,000 teenagers interviewed by Harris pollsters cited social pressures. A higher proportion of girls (73%) than boys (50%) indicated that they thought social pressures were the main reasons why teenagers do not wait to have sex (Harris & Associates, 1986). Indeed, the fact that knowledge alone does not change behavior is nowhere more clearly evident than in the fact that millions of Americans still smoke over 20 years after the Surgeon General's report on its harmfulness.

At the heart of the social influence model is the adaptation of the public health concept of immunization as a strategy for combating social and peer pressures toward negative health behaviors. By exposing young people in small doses to the "noxious" social influences, while at the same time enabling them to examine those influences and develop skills to deal with them, this strategy helps young people build up an immunity to them. The model thus utilizes a social immunization (inoculation) approach, as it were. To achieve the immunity, programs based on this model rely on specific activities that (a) help youth identify where pressures to use drugs, smoke, drink, or have sex come from; (b) help them examine motivations behind those pressures; (c) assist them in developing ways to respond to the pressures; and (d) help them learn skills that they can use to say no to pressure situations. This social inoculation model has yielded encouraging results. For example,

programs in the area of preventing or reducing smoking behavior based on this model have reported differences in rates of cigarette use among young people exposed to the program compared with those who were not, ranging from 25% to 66% (Ellickson & Robyn, 1987).

Another important aspect of the social inoculation model is that it utilizes role models—teens slightly older than those being given the program—to present the factual information, identify pressures, role model responses to pressures, teach assertiveness skills to use in refusing to participate in the behavior, and demonstrate ways to handle problem situations. Teen leaders have been shown to produce greater and more lasting effects than do adults (Luepker, Johnson, Murray, & Pechacek, 1983). Young people want to be and act older than they are. Besides imparting attitudes and skills, slightly older teens illustrate that those saying no to the pressured behavior can be admired and liked by other teens and be successful in the teen world. In the case of the Postponing Sexual Involvement Educational Series, they also clearly demonstrate to the younger teens that having sex is not the way to attain such status.

The revised educational program also took into consideration the fact that adolescent growth and development under age 16 is very uneven. Indeed, during that period most young people have not completed some of the most important phases of their growth and development. For example, cognitive growth and development is such that despite their earlier physical maturation, young people under age 16 often still are using concrete thinking skills. As a result, they are much less likely to conceive of the impact of their choices on their future and much less likely to see the consequences of their actions beyond the immediate.

Programs such as the original outreach program designed by the hospital, which rely on youth being able to use a decision-making process, are bound to be somewhat thwarted by young people's inability to apply more adult, sophisticated thinking skills. Decision making involves conceptualizing alternatives and long-range impacts, something very difficult for those youth with concrete thinking focused on the immediate. Adolescents in a concrete stage of thinking are concerned with their world as it is today, not what it might be like in the future. It is much more difficult for them to engage in planning, which requires not only the ability to think about tomorrow but the ways in which today's actions could lead to consequences tomorrow. Hence, an educational program must be very specific and teach adolescents attitudes and skills that they can use until such time as they become capable of using more adult attributes in managing their sexuality.

As a basic guide for developing the new age-appropriate five-part educational series, hospital staff used the social influence-based Smoking Prevention Curriculum developed by Alfred McAlister (McAlister, 1980). The adaptation developed by the hospital's Emory/Grady Teen Services Program was the first in the country to apply the social influence model as a way of delaying beginning sexual intercourse. Further impetus to the development of the program was the result of a 1982 sample survey of the over 1,200 female adolescents annually seen in the Emory/Grady Teen Services Program family planning clinic. When asked what they would most like more information on, 84% checked the item: How to say no without hurting the other person's feelings. This item turned out to be the single most frequently checked in a long list of items covering information of interest to young teens.

The philosophy of the added component, Postponing Sexual Involvement Educational Series for Young Teens, is as follows: (a) Young people under age 16 are not yet able to understand fully the implications of their actions. (b) Young people under age 16 generally are not mature enough to handle the consequences of their actions. Such consequences are most often negative for that age group—premature pregnancy, for example. Further, the needs that young people often identify that they are trying to meet through sexual intercourse (e.g., being popular, becoming a man, satisfying curiosity, keeping a boyfriend) could best be met in other ways. (c) Young people under age 16 are often pressured into engaging in behaviors that they really do not want to engage in. Such pressure comes from the glamorous images of sexual involvement presented by the media, as well as pressures from peers. (d) Young people need to be given the tools and skills to be able to resist pressures to become sexually involved. They do not naturally know how to do this, and they need to be supported and given practice in such learning.

It is important to note that the Postponing Sexual Involvement Educational Series differs from other sex education programs in several major ways: The Postponing Sexual Involvement Educational Series is not value free (although few things are). It starts with a given value that young people ought not to be having sexual intercourse. Everything in the series is designed to support the value of not beginning sexual intercourse at a young age. Further, the Postponing Sexual Involvement Educational Series for Young Teens is experiential. Through activities in which young teens constantly interact, the series helps young people develop and practice skills that enable them to carry out the desired goal of postponing sexual intercourse. The Postponing Sexual Involvement

Educational Series also differs in that youth are seen as the primary communicators of messages rather than adults. Because the series is aimed equally at young males as well as young females, two teen leaders—one male and one female—slightly older than the youth to whom the series is given usually present the series together.

Thus the revised outreach education program consists of the original Human Sexuality component and the added skill building component. The Human Sexuality part takes five class periods and is implemented by nurses and counselors from the hospital's Emory/Grady Teen Services Program. Material covered is to be found in the *Discussion Guide on Human Sexuality* published by the Teen Services Program. The skill-building component of the program also takes five class periods but is taught by 11th- and 12th-grade youth under the supervision of the nurses and counselors of the Emory/Grady Teen Services Program. Material covered is to be found in *Postponing Sexual Involvement: An Educational Series for Young Teens* published by the Emory/Grady Teen Services Program at Grady Memorial Hospital.

Much controversy has arisen regarding telling young people about contraceptives and also urging them to postpone sexual involvement. Many critics of sex education programs feel it is too mixed a message when a program does both. The Emory/Grady Teen Services Program experience, however, is that young people already think they know about birth control, albeit much of the information they have is erroneous. Combining sound factual information about reproductive health, including information about birth control and how to use it, as in the original Human Sexuality program, with strong rationale and support for postponing sexual involvement, as in the added skill-building program, is necessary for young teens in today's society.

Indeed, results of the program's evaluation showed that young people who were given the combined program of five class periods on human sexuality, including contraceptive information, and five class periods on postponing sexual involvement not only were significantly more likely to postpone sexual involvement than those who did not have the program, but also were more likely to use contraceptives if they did have sex. Indeed, of youth who used birth control, twice as many youth who had the program said they used birth control because of what they learned in school than did those who did not have the program. These data strongly suggest that the two messages are not incompatible. Moreover, the Teen Services Program feels the two messages are essential. This is so because only promoting birth control use leaves

young people who wish to postpone without explicit adult and peer support and, therefore, unnecessarily vulnerable. On the other hand, providing abstinence information to youth who have decided to have or are already having sexual intercourse without also giving them the information they need to protect themselves, is unconscionable.

### *Evaluation Design*

The hospital was interested in learning to what extent the combined Postponing Sexual Involvement and Human Sexuality education program components influenced the sexual behaviors of low-income young people—those male and female youth most likely to utilize the hospital's services when they need health care. Therefore it was decided to study all youth who were born at the hospital in 1971-1972 whose families had received services at the hospital since 1981, thus assuring that the young people in the study group not only had been born in poverty but had remained in poverty. In the Atlanta community, such youth generally are considered to be those at highest risk for early sexual involvement and subsequent premature pregnancy, and also the most difficult to serve. In addition to being born at the hospital, the youth had to be entering the eighth grade in the fall of 1985, because that was the grade in which the combined Postponing Sexual Involvement and Human Sexuality education program components would be given. Criteria for those participating in the evaluation, therefore, were (a) born at Grady Memorial Hospital sometime during 1971-1972, (b) entering the eighth grade in the fall of 1985, (c) resident of an Atlanta area county, (d) mother or child active at Grady Hospital sometime since 1981, and (e) parental/guardian permission to participate. Exclusion from participating in the evaluation resulted from (a) inability to locate mother and/or child by phone, (b) child no longer living in the Atlanta area, (c) child not entering the eighth grade in the fall of 1985, and (d) parental/guardian permission for participation not granted.

Although the program was given to close to 5,000 young people during the 1985-1986 school year, no attempt was made to evaluate the impact on any young people other than those poverty youth described above. Further, no attempt was made to assign randomly the poverty youth to program or no-program groups. Whether a poverty youth received the program was determined solely by whether he or she happened to be enrolled in one of the schools where the program was

given. Where the program was given was determined by the hospital's choice of an educational system in which to offer the program. The hospital gave the program in only one of the four educational systems in the Atlanta area served by the hospital and thus in only one of the four school systems attended by poverty youth. All eighth-grade young people in the school system chosen by the hospital, however, were scheduled to be given the program regardless of poverty status.

The groups of poverty program and no-program study youth were located in 53 separate schools. The poverty youth in the program group were distributed throughout each of the 24 schools in which the Postponing Sexual Involvement and Human Sexuality components were given. The highest number of study subjects in any one school of the 24 schools where all eighth-grade youth were given the program was 20. The lowest number of study subjects in any one school where all eighth-grade youth were given the program was 1. The no-program poverty youth were scattered among 29 schools. The highest number of these study subjects in any one school of the 29 schools where the program was not given to eighth-grade youth was 10. The lowest number of no-program youth in any one school where the program was not given to eighth-grade youth was 1. Subsequent postprogram data analysis increased confidence that differences in outcomes were due to the program and not to differences among schools. This was so because youth in program schools who, for one reason or another, missed the program had outcomes similar to those in no-program schools.

Basing the evaluation on the hospital population circumvented several problems encountered by those trying to evaluate sex education programs. One problem is that although many sex education programs are given in schools, even school systems that are willing to implement sex education programs often balk at allowing youth to be asked about their actual sexual behaviors, particularly over time. Fear of parental disapproval and/or community sensitivity are the main reasons given. On the other hand, parents who had been long-time patients at the hospital (having been seen minimally for over a decade and sometimes for their whole lives) were likely to give consent for the child's participation in the health study. Indeed, 99% of the parents whose children were eligible for participation in the study initially agreed to let them participate.

A second common problem is that of finding a comparison group of youth similar to those who are being given the program and arranging for their participation in a study. Because it chose as a study population

Table 4.1 Program and No-Program Youth Comparisons Prior to Intervention  
(*n* = 536)

Characteristics	% Youth in Program Schools	% Youth in No-Program Schools
Is black	99	99
Lowest income categories <sup>a</sup>	56	45*
Lives with two parents	36	57*
Gets mostly A or B grades in school	71	65
Plans more education after high school	86	87
Is involved in club, team, or activities	53	52
Is leader in club, team, or activity	20	16
Never says no when asked to do something doesn't want to do	13	8*
Has boyfriend/girlfriend	46	38
Thinks most/several friends have had sex	45	45
Thinks almost everybody/a lot of 8th graders have sex	41	40
Thinks best friend has sex	44	50
Thinks friends would disapprove if had sex	44	36
Thinks parents would be very upset if had sex	73	73
Alone with someone who wanted sex last month	41	47
Thinks will have sex in next 6 months	21	23
Would find it hard to say no to sex with someone care about	46	49
Has had sex	25	23
Has drunk	21	23
Has smoked	9	6
Gets 8 hours sleep each school night	81	83
Exercises strenuously 1/2 hour three times/week	92	92
In good health	92	97
Eats fruits/vegetables everyday	78	78

NOTE: <sup>a</sup>paid less than standard low-income fee at last hospital visit  
\**p* < 0.05

only youth who were born at Grady Memorial Hospital and who had remained in poverty, the hospital felt that the life circumstances of the young people would contribute strongly to common characteristics. Indeed, when treatment and comparison group responses given prior to the intervention were compared, the youth proved to be remarkably similar (see Table 4.1). No statistically significant initial background differences were found that would bias any outcomes in favor of those who were to receive the program.

Low-income youth often have poor reading skills, which can make use of written questionnaires difficult and responses suspect. The hospital dealt with this issue by using telephone interviews to gather the data, thus avoiding problems due to misreading. So that anyone within listening distance would not understand the responses the youth were giving to questions being asked, the answers either were structured to be nonrevealing, or verbal codes were given to the youth for use in responding.

A third problem is whether data collection at the same site where the program is given, often carried out by those giving the program, may influence youth responses. To deal with this issue, the data gathering was carried out on evenings and weekends through a subcontract with the Center for Public and Urban Research of Georgia State University. Further, youth actually participated in a broader study of the health habits of eighth-grade youth. Although the primary purpose of the data collection was to evaluate the hospital's outreach education program, information useful to the hospital concerning a wide variety of youth health habits was collected during the study. By using this broader interview approach, the hospital was able to place questions about eating habits, exercise and sleep habits, smoking, drinking, and drug use around the questions relating to sexual behavior so that the sexual behavior questions did not stand out. Indeed, many similar questions were asked about smoking, drinking, and sexual behaviors. The telephone interviewers who called the youth were employed by the Center for Public and Urban Research. They identified themselves as calling from Georgia State University on behalf of Grady Memorial Hospital, thus further separating the Postponing outreach education program and the interviews.

Finally, a fourth problem is that studies of outcomes of sex education programs mostly rely on self-reports regarding sexual intercourse or generalized birth/abortion rates in the area served by the program. The hospital was in a unique position to corroborate the telephone interview data about sexual involvement among the girls. In only 1% of the cases was information in the medical records judged to be contradictory to statements made by the girls in telephone interviews. Thus the record review greatly increased confidence in the interview data.

#### What Did the Hospital Hope to Learn?

The key questions to be answered by the evaluation were (a) How would youth react to the Postponing Sexual Involvement program?

(b) Would youth who had not had sexual intercourse before they were given the program postpone sexual involvement in the eighth grade? (c) Would youth who had not had sexual intercourse before they were given the program continue to postpone sexual involvement in the ninth grade? (d) Would both boys and girls who had not had sexual intercourse before they were given the program postpone sexual involvement? (e) Would youth who began sexual intercourse after having had the program report less sexual involvement? (f) Would girls who had the program have fewer pregnancies? (g) Would youth who had sexual intercourse before the program change behaviors as a result of the program?

#### The Evaluation Population

Over the summer of 1985, the Grady Hospital Birth Logs from the years 1971 and 1972 were used to identify youth who would be age 13-14 in the fall of 1985. The logs contained data on over 5,500 babies. All names of babies weighing greater than 500 grams were pulled from the September to December 1971 and the January to December 1972 birth logs. Then an attempt was made to match hospital record numbers of the babies and their mothers with those in the Grady Hospital Patient Master File to see whether either one was still an active patient at Grady Hospital. Active patients were defined as having been to Grady (ambulatory care or inpatient) since 1981. An attempt then was made to reach all active families to ascertain whether the child found in the birth logs was entering the eighth grade and, if so, whether a parent or guardian would give permission for participation in the study. A change in school admission policies at the time the selected birth cohort was scheduled to enter school reduced the size of the eligible group. Nevertheless, 1,114 young people were determined to meet the criteria for the study; less than 1% of their parents refused to let them participate. The 1,005 consenting parents then were sent a letter further explaining the study and confirming in writing their verbal permission to allow their child to be contacted by telephone.

#### Interview Procedures

During the 1985-1986 school year, preprogram and postprogram data and comparison data were gathered on 665 young people who were in the eighth grade (two thirds of the 1,005 youth whose parents initially

**Table 4.2** Reasons for Youth Not Completing Pre- and Postprogram Interviews

<i>End of Eighth Grade Interview Status</i>	<i>Program Group n = 734</i>	<i>No-program Group n = 271</i>	<i>Total Youth n = 1,005</i>
Completed interviews	487 (66%)	178 (66%)	665 (66%)
Disconnected phones	109 (15%)	29 (11%)	138 (14%)
Youth unreachable <sup>a</sup>	119 (16%)	52 (19%)	171 (17%)
Parent/child refusal	19 (3%)	12 (4%)	31 (3%)

NOTE: <sup>a</sup>Primarily Not Home or No Answer at time of 10 calls, but also Moved, Juvenile Detention Center, etc.

had given permission for participation in the study). All young people were sent a letter prior to their interview, encouraging their participation and enclosing a \$2 bill. This procedure was followed for all five waves of interviews that were carried out in the eighth and ninth grades. Youth with connected, listed telephones received up to 10 call-backs in an attempt to complete data-gathering interviews. Those with unlisted numbers were sent letters asking for their unlisted number and, if supplied, also received up to 10 call-backs. A breakdown of completed interviews and reasons for 340 youth not completing the required number of preprogram and postprogram interviews by the end of the eighth grade are shown in Table 4.2.

No significant differences were found in the composition of the final study group of 665 and the initially identified group of 1,005 youth in terms of sex, school system, and income classification according to hospital criteria (either paying full public hospital fees or less than full public hospital fees). Nor were differences based on race (99% of the original group were black and 99% of the final group were black).

The next year, attempts were made to conduct follow-up telephone interviews with the 665 youth who, by completing interviews at the beginning, middle, and end of the eighth grade, had participated in both a pretest and a posttest and thus were considered participants in the formal evaluation. The midyear interview the first year was necessary because program youth could receive the intervention either the first semester or the second semester and the evaluators wished to have as tight a preprogram and postprogram assessment as possible. Follow-up telephone interviews, however, were conducted with youth only at the beginning and end of the ninth grade (the 1986-1987 school year).

These interviews were used to determine the longer term effects of the hospital's education program.

Six hundred eight (608) youth completed the interview at the beginning of the ninth grade. The beginning-of-ninth-grade interviews constituted a follow-up anywhere from approximately 6-12 months following program intervention. At the end of the ninth grade, interviews were completed with 560 youth. The end-of-ninth-grade interviews constituted a follow-up anywhere from 12-18 months following program intervention. Of these end-of-year youth, however, 21 did not complete the beginning-of-ninth-grade interview. At the end of the ninth grade, the study retention rate of the 665 youth who had complete preinterviews and postinterviews in the eighth grade was 84%. No significant differences were found in the retention rates between program and no-program group youth. Nor were significant differences found in the rate of retention based on the sex of youth in each group. Slightly more girls than boys in both the program and no-program groups, however, completed all five interviews. As with the initial groups, the youth who completed all five interviews were scattered throughout the many schools attended by low-income youth in the Atlanta area. In total, the youth were located in 53 separate schools.

Although data are available on 560 youth at the end of the ninth grade, for the purposes of presenting the richest and most complete data set, the information used in the analysis is presented only on the 536 youth who completed all five telephone interviews. The major outcomes of these 536 youth did not differ significantly from the 560 youth who were still participating in the follow-up study at the end of the ninth grade. By using the group with five completed interviews (a drop of 4% of the youth), the numbers of youth in the study remain consistent throughout and, therefore, comparisons are made easier.

#### Issues in Analyzing the Data

A number of problems emerged in trying to analyze the data. The most critical decision to be made was who had sexual intercourse and when. How this was decided was central to the key evaluative question—the Human Sexuality and Postponing Sexual Involvement program's effect on youth sexual behaviors.

Those studies that ask young people only once about sexual intercourse can accept that one answer as valid. Because they never ask again, they gather no contradictory data. Data analysis thus is fairly

easy. For those studies that ask youth the same question several times over a period of years, however, the analytical problems become more difficult. This is so because not all individuals when asked the same question over a period of several years will give the same answer each time. Because the study described here was a longitudinal study (young people were followed throughout their high school careers), problems with inconsistency of responses are inevitable and bothersome but require the most thoughtful attention possible. To evaluate the program's influence on young people's sexual behavior in the eighth and ninth grades, the first and most difficult analytical task was to ascertain which youth had had sexual intercourse before they had the program and which had not. Sexual intercourse was defined for youth each time they participated in a wave of the study. Youth were asked: People refer to sexual intercourse in many ways—making love, having sex, or going all the way. Have you ever had sex?

Because the program was designed to help youth who had not yet had sex postpone sexual involvement, making this determination was essential to understanding the effect of the program on youth outcomes. In some ways, this task was made easier by the fact that, regardless of the approach the evaluative staff used to make this determination, the Postponing Sexual Involvement Educational Series' effect on beginning sexual involvement remained fairly strong and consistent. Other outcomes were dependent on this categorization, however, so the issue was explored as thoroughly as possible. (See the appendix for a thorough discussion of the data organization alternatives.)

#### Results of the Postponing Program on Sexual Behaviors

The differences between program and no-program groups 12-18 months following the program are shown in Table 4.3. It is clear that the program did have an impact on the youth in terms of postponing beginning sexual intercourse both immediately and over time. Group differences in sexual intercourse experience, depending on how the data were organized, would appear to be in the range of 8% to 15% with an average of 12%.

All of the comparisons shown in Table 4.3, except the method of using youngest age ever given for having begun sexual intercourse as the primary determinate, show a statistically significant difference ( $p < .05$  or greater) based on tests of significance for the difference between

**Table 4.3** Percent Who Reported Having Had Sexual Intercourse at 12-18 Months Postprogram, by Group

Program	No Program	Multiple Response Organization
22%*	33%	All "yes/no" inconsistent cases removed
23%**	36%	"Yes/no" inconsistent cases left in
27%*	42%	Age 13 and over as the primary determinate
20%	28%	Youngest age as the primary determinate
24%*	39%	Multiple prospective criteria
28%*	39%	Multiple prospective criteria and unknowns conservatively distributed

NOTE: \* $p < 0.05$ , \*\* $p < 0.01$ 

proportions using a one-side normal curve test applied to the arcsine transformations of the proportions (Cohen, 1988).

Indeed, even if the data (all inconsistent cases left in) are presented in their entirety just as given by all youth with no preprogram/postprogram differentiation made for either program or no-program group, the program still had a noticeable impact on sexual behaviors. As shown in Table 4.4, even though a greater proportion of the program youth stated they had had sex at the first interview at the beginning of the eighth grade than did the no-program youth, by the last interview at the end of the ninth grade the situation was reversed. By the end of ninth grade, a greater proportion of the no-program group stated they had had sex than did the program group. (This is represented by a first-to-last interview increase of 18% for the program group and a same-period increase of 25% for the no-program group.) Also shown is the 23% increase for young people who should have had the program because they were in the same schools as those who were given the program, but who missed being given the program.

#### Validation of Interview Data and Handling of Inconsistencies

The hospital was in a unique position to corroborate the telephone interview data about sexual involvement among the girls. Because these were hospital patients, the medical records of the girls in the study could be checked by research staff. Ten months following the final interview

**Table 4.4** Sexual Intercourse Experience Over Time, By Group ( $n = 536$ )

Group	Beginning 8th Grade		End 8th Grade <sup>a</sup>		Beginning 9th Grade		End 9th Grade	
	Had Sex	No Sex	Had Sex	No Sex	Had Sex	No Sex	Had Sex	No Sex
Program <sup>b</sup> $n = 369$	92	277	110	259	125	244	159	210
No program <sup>c</sup> $n = 141$	32	109	44	97	53	88	67	74
Missed program <sup>d</sup> $n = 26$	4	22	9	17	10	16	10	16
	15%	85%	35%	65%	38%	62%	38%	62%

NOTE: <sup>a</sup>The End 8th Grade category includes three boys under Had Sex who began having sex preprogram.<sup>b</sup>First-to-last interview sexual involvement increase of 18%<sup>c</sup>First-to-last interview sexual involvement increase of 25%<sup>d</sup>First-to-last interview sexual involvement increase of 23%

wave, the records on hospital visits were examined for notations with respect to sexual involvement, pregnancy tests, pregnancies, births, abortions, treatment of sexually transmitted diseases, and family planning counseling and/or family planning services. The interview and hospital data turned out to be remarkably consistent. In other words, if a girl in her interviews said she had not been sexually involved, usually no contraindication in the medical record and sometimes a notation of "not sexually active" was found. On the other hand, for girls who said they had had intercourse, the medical record often showed some indication of sexual involvement and/or it was noted that the girl stated at the time of the hospital visit that she was sexually involved.

The medical record review also was helpful in other respects. For example, in her end-of-ninth-grade telephone interview, one girl who reported that she was pregnant actually was not. Hospital records showed that when the patient came for a pregnancy test 1 month later, the results were negative. Thus the hospital record information was useful in verifying accurate pregnancy, abortion, and birth data. In only 1% of the cases was information in the medical records judged to be contradictory to statements made by the girls in telephone interviews. Thus the record review greatly increased confidence in the interview data. It also increased confidence in the method of organizing data to deal with inconsistencies.

### Youth Who Started to Have Sex During the Semester the Program Was Given

One problem still remained, however, that was particularly relevant to determining the main program outcome. It concerned the unknowns—18 program youth (14 boys and 4 girls) who appeared to have begun having sex during the same semester in which the program started. These youth said they had not had sex when they were first interviewed but indicated that they had had sex at the end of the same semester in which they were given the Postponing Sexual Involvement program. Unfortunately, the ages given by some of these youth over the five waves of data collection as to when they first had sexual intercourse also were inconsistent. Thus it was impossible to determine whether these youth had sex before they started the program, during the time they were being given the program, or following the program. It was assumed, however, to be most unlikely that all youth would fall into either the preprogram (preprogram completion) group or postprogram with respect to beginning sexual involvement. If they followed the pattern of their fellow program youth, the outcome data would not vary; on the other hand, it was important to consider what the data might look like if the sexual behaviors of the 18 youth were not the same as that of their peers who also had the program.

As a conservative approach to handling these "unknowns," the data were analyzed also as if these 18 program youth followed the same sexual behavior patterns as those youth who were not given the program. To do this, the 18 youth were distributed by sex in the program group between the preprogram sexually involved group and the postprogram sexually involved group in the same proportions as the sexually involved youth in the no-program group. When this was done, a statistically significant difference still remained between the program and no-program groups. Table 4.5 shows the final organization of the data that are used as the basis for the evaluation of the Postponing Sexual Involvement Educational Series. Added into the table are the youth who missed the program and the unknowns. The full table shows the outcomes of program youth following participation in the Human Sexuality and Postponing Sexual Involvement program in contrast with a comparison group of young people who did not have the program (the no-program group). Significant differences are found between the program group and the no-program group. The outcomes of the program youth also are contrasted with a group of youth who were in the same schools as the young people who received the program but for some

reason missed being given the program. Significant differences are found between the program group and the missed program group as well. Although the numbers are small, this latter finding supports the conclusion that the difference between the program and no-program groups is not due to the differences between the two kinds of schools attended but to the impact of the program. Although not without problems, this final categorization seemed the best way to try to include youth with inconsistent responses in the program evaluation. It is on this data division that the rest of the analyses were performed.

### Examining Explanations for Evaluation Outcomes

Once the data were organized to show sexual behavior status at various points and the differences between the outcomes of the program and no-program groups were verified, it became important to ascertain further that the reduction in sexual involvement was due to program impact as opposed to other differences between groups. To do this, the evaluation looked at a number of key factors, including (a) similarities and differences between program and no-program groups prior to intervention, (b) relationship status throughout the study period—that is, having a boyfriend or girlfriend, (c) situational opportunity status throughout the study period—that is, being alone with someone who wanted to have sexual intercourse, and (d) perceived helpfulness of the program to program participants.

Similarities and differences between program and no-program groups prior to the intervention were first examined. No statistically significant initial background differences were found that would bias any outcomes in favor of those who were to receive the program (see Table 4.1).

In order to explain program outcomes, it also was important to see whether youth who had the Postponing Sexual Involvement program were less likely to have boyfriends or girlfriends and, therefore, some of the difference in rates of sexual involvement could be attributed to less interpersonal involvement. That did not turn out to be true, however. Overall, those who had not had sex and who were given the Postponing Sexual Involvement program had just as many, if not more, boyfriends and girlfriends than did those in the no-program group (boys and girls combined—End 8th Grade: 47% vs. 45%; End 9th Grade: 50% vs. 43%). Thus having a boyfriend or girlfriend does not seem to account for differences in the outcomes observed between groups.

Table 4.5 Sexual Intercourse Experience and Timing, by Group (n = 536)

Group	Began Sex Before Program (n = 131)				Did Not Begin Sex Before Program (n = 405)				Status End 9th Grade					
	Had Sex		No Sex		UK Sex		No Sex		UK Sex		Had Sex		No Sex	
	Had Sex	No Sex	UK Sex	No Sex	UK Sex	No Sex	UK Sex	Had Sex	No Sex	UK Sex	Had Sex	No Sex	UK Sex	
Program														
Received <sup>1</sup> with unknowns	101	21	247	0	42	226	0	74	194	0	28%	72%	—	—
	27%	8%	92%	—	16%	84%	—	28%	72%	—	—	—	—	—
Received without unknowns	95	9	247	18	30	226	18	62	194	18	24%*	76%	—	—
	27%	4%	96%	—	12%*	88%	—	24%*	76%	—	—	—	—	—
Missed	4	4	18	0	6	16	0	8	14	0	36%	64%	—	—
	15%	18%	82%	—	27%	73%	—	36%	64%	—	—	—	—	—
No Program														
	32	22	87	0	29	80	0	42	67	0	39%	61%	—	—
	33%	20%	80%	—	27%	73%	—	39%	61%	—	—	—	—	—

NOTE: <sup>1</sup>The Received Program Group appears with and without the 16 unknowns (UK Sex) distributed within it following the same preprogram and postprogram pattern of sexual involvement (by sex) as the No-Program Group.

\*p < 0.01 when contrasted with the No-Program Group. \*\*p < 0.05 when contrasted with the No-Program Group.

Another way of measuring opportunity for sexual involvement was by whether the youth were ever alone with someone who wanted to have sexual intercourse with them. The problem with using this measure for the program group is that the Postponing Sexual Involvement program taught that one way to avoid sexual involvement is to avoid being alone with someone where sexual intercourse would be possible. Nevertheless, if young people in the program group were more likely to never be alone with someone who wanted to have sex with them, it might offer a partial explanation for the differences in sexual behavior.

In each group of young people who had not had sex, however, at least a fifth of the youth said at each interview that they were alone in the last month with someone who wanted to have sex with them. Overall, no discernible pattern was found that would place one group who did not have sex at greater risk than the other. Over 2 years, on the average 30% of the no-program group youth who never had sex were alone in the last month with someone who wanted to have sex with them, and 27% of the program group were alone with someone under the same circumstances. Thus young people in the program group who had not had sex were just about as likely to be alone with someone who wanted to have sex with them as youth in the other groups. Thus it does not seem as if opportunity for sexual involvement can account for behavioral differences among those who did and did not have the Postponing Sexual Involvement program.

#### Helpfulness of the Postponing Sexual Involvement Program to Program Participants

In order to explain outcomes, it was important to learn whether the youth perceived the Postponing Sexual Involvement program as enabling them to have more control over their sexual behavior. To obtain such information, the evaluation asked youth postprogram: With respect to the information the teen leaders or person from Grady Hospital taught, how helpful will that information be to you personally in saying no to sex? Youth reacted extremely favorably to the Postponing Sexual Involvement program. Of the young people who had not had sex before the program, 95% said the Postponing Sexual Involvement program would be helpful personally to them in saying no to sex. Indeed, well over three quarters felt the program would be extremely helpful or very helpful. Overall, girls and boys were almost equally likely to say they thought the program would be helpful personally (92% of boys said so

as did 96% of girls). Girls, however, were more likely to rate the program as extremely helpful or very helpful. Based on their positive attitude toward the information given them through the teen-led Postponing Sexual Involvement program and the fact that young people who had the program had reduced rates of sexual involvement, it seems apparent that the Postponing program did affect the behaviors of young people.

### Major Findings

*The program helped youth postpone sexual involvement.* Youth who had not had sexual intercourse before they participated in the Postponing Sexual Involvement program were significantly more likely to postpone sexual involvement. By the end of the eighth grade, youth who were not given the program were as much as five times more likely to have begun having sex than were young people who were given the program (see Table 4.5, second column). Youth who had not had sexual intercourse before they were given the Postponing Sexual Involvement program also were much more likely to continue to postpone sexual involvement. By the end of the ninth grade, one third fewer of the youth who were given the program had begun having sex than had young people who were not given the program.

*The program was of assistance to both boys and girls.* Boys who had not had sexual intercourse before they participated in the Postponing Sexual Involvement program were significantly more likely to postpone sexual involvement. By the end of the ninth grade, one third fewer of the boys who were given the program in the eighth grade had begun having sex than had the boys who were not given the program. Girls who had not had sexual intercourse before they were given the Postponing Sexual Involvement program also were significantly more likely to postpone sexual involvement. By the end of the ninth grade, one third fewer of the girls who were given the program in the eighth grade had begun having sex than had the girls who were not given the program.

*Youth who had sex were less likely to continue.* Youth who began sexual intercourse after having had the Postponing Sexual Involvement program were more likely to report less sexual involvement at the end of the ninth grade than were similar youth who did not have the program. They were much more likely to report "I tried sex once or twice," (28% vs. 43%) as opposed to youth who did not have the program who more often reported that they had sex "sometimes" or

"often" (table not shown). Youth who began sexual intercourse after having had the Postponing Sexual Involvement program, at the end of the ninth grade also were more likely to report that they did not expect to have sex in the next 6 months (53% vs. 72%) than were similar youth who did not have the program (table not shown).

*Fewer pregnancies occurred.* Among the youth who were given the Postponing Sexual Involvement program, fewer girls were sexually involved. Because of this, one third fewer pregnancies occurred than would have occurred if the girls who were given the program had followed the sexual involvement patterns of the girls who did not have the program (table not shown).

*The program did not have an impact on those who had had sex prior to being given the program.* Youth who had had sexual intercourse prior to being given the Postponing Sexual Involvement program did not change their sexual involvement, nor were they more likely to have fewer pregnancies than similar youth who were not given the program (tables not shown).

### Summary and Conclusions

The major goal of Grady Memorial Hospital's outreach Postponing Sexual Involvement educational program given in the eighth grade was to assist young people in postponing sexual intercourse. The evaluation focused on behavioral outcomes of low-income, hospital-affiliated youth, and the findings are based on information collected from 536 such youth who completed telephone interviews at the beginning, middle, and end of the eighth grade and the beginning and end of the ninth grade.

Overall, nearly three quarters of the study youth who were given the Postponing Sexual Involvement program had not yet had sexual intercourse. Significant differences were found in the rates of beginning sexual intercourse among youth who had not had sexual intercourse and who were given the program, in contrast with a comparison group who were not given the program. Differences in rates of continuation of sexual involvement among the two groups further indicated that the program had an important effect on sexual behaviors. Moreover, the program's impact lasted at least 12-18 months. A follow-up study is now underway to evaluate the program's impact on youth for a longer period. Youth are being followed through ages 17-18 (the usual time of graduation from high school).

The longitudinal study with repeated rounds of data collection presented challenges for the evaluative staff. Nevertheless, the time-consuming and intensive effort expended in establishing the evaluative population, the careful structuring of the data-collection mechanism, and the lengthy process of data organization and analysis all helped show that the program outcomes were meaningful and significant for this high-risk, low-income population. Corroborating medical records research on participating female youth was uniquely helpful in increasing confidence that the self-reported behavior of the females in the study was accurate.

The authors hope such a description highlights the importance of careful evaluation. Without sound evaluations, the hospital's Emory/Grady Teen Services Program would not have known that its first knowledge-based educational outreach program was not having the desired effect. Nor would they have known that the addition of the skill-building component could contribute significantly to the desired outcome of helping young people gain more control over their sexual behavior.

Further, it is important to note that the manner in which the study was designed and carried out permitted those involved in the Emory/Grady Teen Services Program to learn from the evaluation in ways that already have spawned further innovative program efforts. For example, by collecting data on multiple health behaviors, it became clear that young people who became sexually involved also were more likely to experiment with smoking and drinking, thus establishing patterns that could harm reproductive health throughout life, in addition to affecting immediate pregnancy outcomes. Therefore, funds have been secured to develop innovative ways of helping young people better understand the interrelationship of substance use and reproductive health. Such concepts will be integrated into the hospital's outreach education program.

Additionally, it was clear from the data that once sexually involved, young people were a great risk for pregnancy despite increased use of birth control. Many young people who became pregnant previously had used birth control at one time or another. Hence, new ways of improving contraceptive use are being devised and will be integrated into both the hospital's Emory/Grady Teen Services Program outreach education effort and its family planning clinic for young teens.

Finally, the data emphasized that young people entering the eighth grade already had a number of misperceptions—for example, they

greatly overestimated the number of their peers who were sexually involved. Along with related findings and the fact that a number of young people already had become sexually involved before the eighth grade, the hospital made two important decisions. One, the hospital should recommend implementation of the Postponing Sexual Involvement for Young Teens program as being appropriate at both the seventh- and eighth-grade levels. Two, an age-appropriate postponing sexual involvement curriculum for fifth and sixth graders (10-12-year-olds) should be developed. Indeed, such an educational program, *Postponing Sexual Involvement: An Educational Series for Preteens*, already has been developed and field tested. The preteen program now is being disseminated throughout the state of Georgia.

The program authors and evaluative staff recognize that, despite the initial positive findings and the richness and breadth of the information learned from the evaluative study described in this chapter, issues surrounding the original *Postponing Sexual Involvement Educational Series* remain for further investigation. These issues are particularly important for program implementation elsewhere. For example, it is not known whether the *Postponing Sexual Involvement Educational Series* is as effective with other population groups as it is with low-income, high-risk youth. Nor is it known if the series is as effective with adults leading the program as opposed to the teen leaders the hospital uses to present the program. It also is not known if the series, given by itself without a complementary human sexuality education program, would be as effective. Some clues about these questions can be found in the research that has been done on the social influence model as it is applied to other fields. Definitive answers, however, will have to come from research on the application of the social influence model in the human sexuality area. Replication studies and further research on the *Postponing Sexual Involvement Educational Series* and related outreach education programs are needed.

## APPENDIX

A fuller description about the handling of inconsistencies is included here because they are assumed to present issues that other evaluators must face, particularly those who collect data from young people over a period of time in an effort to learn at what age youth begin certain behaviors.

### Deciding About Inconsistencies

It was decided that it would be best to report on all the youth who had completed each of the five interviews in the study. Eliminating some youth, it was felt, might unnecessarily bias the results. Of particular concern in keeping all youth in the study, however, were inconsistent responses made by youth. A major task, therefore, was deciding how to present the data from all youth—in particular the data from youth who sometimes gave inconsistent responses—in a way that preserved the integrity of the evaluation.

Over the 2-year interview period, the evaluative staff had anticipated some inconsistencies would occur, if for no reason other than lapse of time and dimming of memory. As a whole, the young people who were in the program group were slightly more likely to give consistent yes/no responses about sexual behavior (89% vs. 84%) than were those in the no-program group. By consistent yes/no responses, it is meant that if a young person ever said yes to the question asking about sexual intercourse, he or she subsequently never said no. With respect to questions about intercourse, however, the sex of the respondent seemed to be the major determinate of consistency and/or inconsistency. The boys in both the program and no-program groups were more than twice as likely to give inconsistent yes/no responses about their sexual behavior as were girls in those groups (19% vs. 7%).

### Prospective Approach to Analyzing Preprogram Sexual Involvement

As part of trying to determine whether young people had had sex before being given the Postponing Sexual Involvement program, the evaluative staff ended up analyzing the data in several different ways. One way was to use the yes/no responses given to the question "People refer to sexual intercourse in many ways—making love, having sex, or going all the way. Have you ever had sex?" while ignoring the context formed by responses to other questions. Two approaches using the yes/no responses alone were tried: one was to leave all the yes/no inconsistencies in; another was to remove them all. The problem with these methods was that, in the first case, the Had Sex and Not Had Sex categories each included different youth at each interview point, some dropping in and some dropping out. Further, it did not accurately reflect the total number of youth who had or had not had sex at any given point. In the second instance, the problem with limiting the study to only those youth who gave consistent answers was a possible biasing of the study toward those youth who indicated that they never had sex. In other words, all of the youth who said no at each of the interviews were included. Among youth who at some point said yes they did have sex, however, a number were eliminated from the study when at some later point they said no they did not have sex.

Using some of the other information gathered through the questionnaire, therefore, seemed appropriate. Because young people who said yes to the sex question were also asked at what age they first had sex, yet another approach tried was to use the yes/no answers combined with ages given for first intercourse. Because the birthdates of the youth were known, it was clear that all youth were 13 years of age or older at the beginning of the study. Under this combined data method, if youth at any time over the five waves indicated (even if it was the last wave and contradicted previous information) that they had had sex before age 13, they were put into the Began Sex Before Program category. In another combined data approach, only if they indicated that they had sex before age 13 when first asked, were they put into the Began Sex Before Program category. In both instances, each youth's status was held constant once sexual involvement was determined.

Using age as a primary determinant of when young people had sex, however, also appeared to have some biasing effect. The evaluative staff felt that using the youngest age given to determine placement of the youth in the Began Sex Before Program pool unnecessarily reduced the postprogram sexually involved pool, as well as the postprogram sexually uninvolved pool. In particular, because the purpose of the study was to look at sex postprogram, this seemed to have the possibility of skewing data results. The evaluative staff also felt that it may have given (inappropriate weight to one piece of conflicting information over another; that is, favoring past ages over present ages, particularly when the purpose was to evaluate postprogram sexual involvement (age 13 and older).

The principal problem with using age alone as the main arbiter of when young people became sexually involved, however, was that young people had great difficulty in giving consistent ages for when they began having sexual intercourse. Because some youth did not begin having sex until later in the study, they did not have as many chances to be inconsistent (for example, those who at the end of the ninth grade first reported beginning sex and gave an age did not have a chance to be inconsistent, while those who at the beginning of the eighth grade reported having sex and gave an age had four chances to be inconsistent). Over the five interviews, only 15% of the youth who answered the age question more than once gave the same age each time for beginning sexual involvement. (This fell to 8% for young people who each time said they had had sex and, therefore, gave an age at all five interviews.) Even allowing for a 1-year difference among ages given, less than half (45%) of the young people gave a consistent answer. (Among young people who gave an age at all five interviews, the proportion of those giving consistent ages with a 1-year difference fell to 32%.) It also was apparent that boys had much more difficulty giving consistent ages than did girls. Only about a third of the boys gave consistent ages—allowing for a 1-year difference in the ages given—as opposed to two thirds of the girls. (Among the boys who gave ages within a 1-year difference at all five interviews,

only a quarter of them did so consistently, as opposed to nearly two thirds of the girls.)

Finally, it was decided that at time of first interview, what the youth said about their preprogram sexual intercourse status should be accepted regardless of ages given then or later. This appeared to subject the youth's initial response to less interpretation and to be more respectful of the data as collected. Relying on the youth's self-perceptions of their preprogram status also seemed appropriate to the prospective nature of the study.

### Prospective Approach to Analyzing Postprogram Sexual Involvement

A number of difficult questions arose about how to look at postprogram sexual involvement. Because inconsistent ages given by some youth varied widely and the evaluation centered on sexual involvement postprogram at age 13 and above, ultimately the data were organized to look prospectively at postprogram sexual involvement as well. It was decided that youth who said at the first interview that they had had sex should be placed into the Began Sex Before Program category regardless of later inconsistencies. The only exceptions made to this were the three program youth (three boys) who did not have the Postponing series until the second semester but started having sex the first semester. It also was decided that youth who said at the first interview that they had not had sex should be placed into the Did Not Begin Sex Before Program category regardless of later inconsistencies. Given this division of the data, postprogram sexual involvement then was determined by multiple factors. Postprogram sexual involvement took into account responses to four questions: (a) Have you ever had sex? (b) How old were you when you first had sex? (c) On how many days did you have sex in the last month? (d) Which of these statements best describes you now? I have sex often, I tried sex once or twice, I used to have sex but I don't anymore.

Using this information, a young person who said he or she had not had sex at the preprogram interview was determined to have had sex postprogram if he or she gave any indication of current or ongoing sexual involvement following the program. Thus young people who said no to the question, Have you ever had sex? at the first interview were adjudged to be sexually involved postprogram if, at any subsequent interview, they (a) said yes (had sex) and gave a starting age 13 or above, and/or (b) gave the number of days they had sex in the last month, regardless of age given for first sexual experience, and/or (c) described themselves currently as having sex often or sometimes, regardless of age given for first sexual experience. The youth's sexual involvement status was held constant thereafter.

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## A Comprehensive Age-Phased Approach

### *Girls Incorporated*

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By the early 1980s teenage pregnancy and parenthood were widely considered to be significant social problems (Alan Guttmacher Institute, 1981; Chilman, 1980; Furstenberg, Lincoln, & Menkin, 1981; Ooms, 1981). By the mid 1980s analysts had written about the likely causes of these problems, and schools and other organizations were developing and testing programs to intervene (for a review of these, see

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Hofferth, 1987, and Nicholson, 1988). Girls Incorporated, then Girls Clubs of America, was already well situated to be one of the organizations taking action to help young women get through their teen years without becoming pregnant or parents. In 1981 the council, the organization's largest governing body, had adopted a policy statement endorsing sexuality education by schools and affiliates in support of parents' role as the primary sex educators of their children. With training and technical assistance from the national organization, 83% of affiliates reported in 1983 that they delivered sexuality education for at least some age groups.

### *The Girls Incorporated Initiative*

Girls Incorporated is a national youth organization serving girls and young women ages 6-18. Its purpose is to offer a balanced program of informal education to enable girls to become confident, competent, and economically independent women, overcoming the barriers they confront in an inequitable world. Girls Incorporated has a service population of 250,000, and its affiliates operate more than 200 professionally staffed centers in 120 cities in 33 states. Of the girls and young women served, more than two thirds are from low-income families, more than half are from single-parent families, and about half are girls and young women of color. It seemed especially appropriate for Girls Incorporated to address teen pregnancy and parenthood because these were issues already being confronted by affiliates, many members were at relatively high risk of becoming teen parents, and both research and practice indicated that pregnancy and parenthood were experienced as problems by the young women themselves. An estimated 80% of adolescent pregnancies are not intended at the time of conception (Hayes, 1987).

By 1985 Girls Incorporated had enlisted a distinguished advisory panel, worked with them to outline a comprehensive four-component model of pregnancy prevention and to design a longitudinal and quasi-experimental evaluation, secured initial funding from pioneering private foundations, and selected four experimental and four control sites from among the 20 affiliates applying to be part of the project. First drafts of the curricula were written by experienced consultant Pamela M. Wilson, professional staff at the experimental sites were trained to deliver the programs, and pencil-and-paper survey instruments were developed and pretested so that by October 1985 the girls and young

women ages 12-17 in those eight affiliates were completing the first of four annual surveys. This report is based on program groups and comparison groups in each of the four experimental sites: Dallas, TX; Memphis, TN; Omaha, NE; and Wilmington, DE. An explanation for using data only for experimental sites is given in the section "Data Collection and Measurement." For the remainder of this chapter the word *site* refers to these four Girls Incorporated affiliates.

### *The Comprehensive Model*

At the time the program was designed, the evidence already seemed strong that teen pregnancy and childbearing are intractable problems requiring comprehensive and sustained efforts if intervention is to be successful. Thus rather than try one program in each of four sites and compare the results, the project was designed to offer all four components of the comprehensive program in each of the four sites. Overall, the model focuses on four approaches thought in 1985 to be promising strategies for preventing pregnancy: family communication about sexuality, and skills in resisting pressure to be sexually active, for girls ages 12-14; and motivation and resources to postpone pregnancy, and overcoming barriers to effective contraception for sexually active teens, for young women ages 15-17. A specific hypothesis was that participation in two or more components would be more effective in preventing pregnancy than participation in only one component of the program. This is the hypothesis addressed in this chapter.

### *Growing Together*

In 1985 the literature on parent-daughter, especially mother-daughter, communication about sexuality suggested this strategy as an important aspect of comprehensive pregnancy prevention. Early studies had suggested that daughters who communicated with their mothers about sex were less likely to be sexually active (see McAnarney, 1982, and Fox & Inazu, 1980, for reviews) and more likely to practice birth control if they were having intercourse (Coles & Stokes, 1985). Yet few parents did communicate about sexual information and values, and the overwhelming majority said they needed help in talking about these issues (Alan Guttmacher Institute, 1981). It was on this basis that Growing Together

was designed, though later studies are more mixed and some report no significant relationship between family communication and either delayed initiation of sexual intercourse or more regular contraceptive use (Furstenberg, Herceg-Baron, Shea, & Webb, 1986; Treboux & Busch-Rossnagel, 1990).

As conducted during this study, Growing Together was five 2-hour sessions, the first for parents only, and the remainder for parent-daughter pairs. As noted above, the girls were ages 12-14. The focus of the program, both as initially delivered and in its final form, is on comfort and skill in communicating within the family about sexual information and values. The goal is to delay the initiation of sexual intercourse among young participants, thus preventing pregnancy. All the sessions are interactive and playful, with a trained sexuality educator facilitating a series of role-playing and discussion exercises.

The first session is designed to establish rapport of the facilitator with the parents and the parents among themselves, and especially to assure the parents that they have what it takes to talk to their daughters about such subjects as sexuality, dating, and sexual behavior. Subsequent sessions focus on physical and emotional changes at puberty, the anatomy of reproduction, myths and facts about sexuality and getting pregnant, values about when and under what circumstances girls and boys should be together in dating situations, and many other topics on which parents and adolescent daughters often disagree. The groupings for the exercises intentionally vary to show that not all disagreements are parent-daughter conflicts. In some exercises individuals speak for themselves without prior consultation; in others parents form one group and daughters another, and toward the end of the series the participants work as parent-daughter pairs or family groups (a parent and two daughters). Always the focus is on giving both parents and daughters practice in talking about issues that most families say they have difficulty discussing.

Most of the participants in Growing Together were mother-daughter pairs, though several fathers participated. Girls needed an adult in order to enroll in the program but were encouraged to enlist another trusted adult if a parent was not available, though this did not occur frequently. Once the program began, both parents and daughters could continue to participate even if the partner could not attend a session. More daughters than parents attended every session. Recruitment of parent-daughter pairs to participate in the program was a challenge at every site.

### Will Power/Won't Power

By 1985 experts had concluded that sexuality education should begin early and go beyond knowledge and attitudes to give practice in the recommended behaviors—that is, should build skills (Kirby, 1984). McAurney (1982) among others was noting that adolescents younger than age 16 have not yet reached the cognitive stage of formal operations that enables them to think about the future and to think abstractly. Thus they argued, pregnancy prevention efforts should be more directive for early adolescents, emphasizing the inappropriateness of sexual intercourse for young teens and providing skills in recognizing and resisting the pressure to become sexually involved. Though the impetus was cognitive, social learning theory was the basis for much program development.

The subsequent research lends support to this approach focused on skill building, and social learning. For example, Howard and McCabe (1990) found that eighth-grade students who had participated in the Postponing Sexual Involvement program were less likely to report being sexually active at the end of the eighth and ninth grades than those who had not participated. Similar results have been reported for a program targeting resistance to the use of harmful substances by early adolescents (Ellickson & Bell, 1990).

As conducted during this study, Will Power/Won't Power consisted of six 2-hour sessions for a total of 12 hours for the participants aged 12-14. The goal of Will Power/Won't Power is to delay the initiation of sexual intercourse among participants, thus preventing pregnancy. The program is interactive and uses humor and a light touch to convey its important messages. The program begins with group-building exercises, an introduction to relationships, and basic assertiveness skills. Exercises and films address recognizing pressure to have sex that emanates from the media and other societal sources, peers, and certain dating situations. Levels of physical affection, reasons to abstain from sexual intercourse, recognizing and resisting pressure "lines," and the consequences of early sexual involvement are explored through exercises, including assertiveness role-plays directly related to resisting the pressure to have sexual intercourse.

Will Power/Won't Power had the highest enrollment of any of the components of the Preventing Adolescent Pregnancy model. Staff used posters, flyers, and inexpensive incentives to encourage enrollment, but word-of-mouth advertising from participants was effective, and often

11-year-olds were eager to turn 12 so that they could participate. The original design of the study had three levels of Will Power/Won't Power, with graduates from one year being encouraged to sign up for level two in the following year of the study as long as they were still in the 12-14 age range. Though some girls did participate in the second and even third levels, recruitment to a second year of the program by the same name proved taxing for staff. Consequently, the refined version being implemented by affiliates is one program with eight 90-minute sessions.

### Taking Care of Business

By the early 1980s analysts were linking the prevention of adolescent pregnancy with the educational expectations and career plans of teen women. Catherine Chilman (1980) concluded from her review of studies that across cultural groups, young women with clear goals and high aspirations were less likely to experience pregnancy and childbirth than their peers who had lower aspirations and less clear life goals. Joy Dryfoos (1983) argued that programs needed to go beyond the "capacity" to prevent pregnancy to address the "motivation" to postpone pregnancy and childbearing until later in life.

Various versions of what has come to be called the life options model are being used in schools and agencies across the country. They have in common a focus on decision making and often assertiveness skills, career exploration, and sometimes assistance in making connections to job and educational opportunities, attention to the obstacles confronted by teen parents, and information and resources for responsible sexual decision making. Some also have components for improving basic skills (STEP), addressing sex role stereotyping (Choices), or developing leadership skills (Teen Outreach Program). Among the early versions were Life Planning Education of the Center for Population Options (Hunter-Geboy, Peterson, Casey, Hardy, & Renner, 1985) and Choices (Bingham, Edmondson, & Stryker, 1983) developed by the Girls Club of Santa Barbara and sold nationally in book form. In her 1987 review of pregnancy prevention programs, Sandra Hofferth considered the approach promising but the evidence on effectiveness as pregnancy prevention inconclusive. Since then, preliminary evidence on the STEP program of Public/Private Ventures (1987) and the Teen Outreach Program of the Association of Junior Leagues (Allen, Hoggson, & Philliber, 1990; and Philliber & Allen, this volume) confirms that the approach has merit.

The original version of Taking Care of Business was called Choices: Career Awareness; it incorporated several activities from the *Choices* book and one or two from *Life Planning Education*. Designed as nine 2-hour sessions for young women aged 15-17, the goal of the program was to motivate participants to avoid pregnancy by abstaining from sexual intercourse or using effective and consistent contraception. The program focused on the individual futures of young women and included goal-setting, sex role stereotyping, assertiveness, abstinence, sexual responsibility, contraception, information about sexually transmitted disease, career planning, and communication skills.

In general the objectives, approach, and even most of the activities in the three curricula for Growing Together, Will Power/Won't Power, and Taking Care of Business remained substantially the same over the course of the study, so that the authors are fairly confident of having performed a reasonable test of the effectiveness of each component. Taking Care of Business probably changed the most of the three, moving more toward pregnancy prevention activities and away from career awareness and household budgeting activities, meanwhile dropping the copyrighted materials from other sources. The young women who participated in Taking Care of Business reported liking it and learning from it, but schedule conflicts with work and school activities made recruitment challenging and attendance more sporadic than was true of Will Power/Won't Power. A few young women participated in a second level of the program, but this was not a popular option.

#### Health Bridge

As early as 1980 very positive results in pregnancy prevention were being reported from a school-based clinic, the Maternal and Infant Care (MIC) project in St. Paul, Minnesota (Edwards, Steinman, Arnold, & Hackanson, 1980; Hayes, 1987). In the ensuing years many clinics have been established in and near schools. Kirby has evaluated school-based clinics (this volume) and noted that they generally have been effective in meeting their goals of providing primary health care, but that only 15-20% of the activity of school-based clinics was in reproductive and contraceptive services. In most cases, he reported, the availability of clinics did not dramatically increase the use of contraception by teens, partly because the clinic was not the source of birth control for the majority of sexually active teens, and partly because many sexually

active teens would have used birth control anyway (Girls Incorporated, 1990, citing personal communication from Kirby).

Zabin reported that, as part of a comprehensive program, a storefront clinic near schools in Baltimore was effective in increasing the contraceptive use of sexually active junior high school students (Zabin, Hirsch, Smith, Street, & Hardy, 1986; see also Zabin, this volume). The Panel on Adolescent Pregnancy and Childbearing of the National Research Council concluded that "making contraceptive methods available and accessible to those who are sexually active, and encouraging them to diligently use these methods, is the surest strategy for pregnancy prevention" (Hayes, 1987, p. 177).

The Health Bridge component of the Girls Incorporated Preventing Adolescent Pregnancy program is more a delivery system than a program with a curriculum. It was designed to be the youth organization's answer to a school-based clinic, linking educational services in the Girls Incorporated center with comprehensive health services, including reproductive health services, in the community. The goal of the program as it relates to pregnancy prevention is to reduce the incidence of unintended pregnancy among the young women who are having sexual intercourse, by reducing the psychological and logistical barriers to effective contraception.

The key characteristics of Health Bridge are those that professionals in school-based, school-related, and free-standing centers have reported as being important in pregnancy prevention. They include *accessible services* with both health education and medical services provided in a convenient location; *anonymous services* in a context in which both adults and peers can assume that the services being used by the teens are for an earache or a school physical rather than for reproductive health; *comfort with health personnel* by having a clinic staff person, usually a nurse, spend time at the Girls Incorporated center and become a trusted and familiar face, thereby encouraging the young women to use the clinic and to approach her with sensitive health issues; *case management* with informal intake interviews, referral of participants to the clinic, and follow-up to be sure that medical recommendations are being pursued correctly; and *health education conducted by clinic staff* either alone or with Girls Incorporated staff to increase the visibility of the clinic linkage and to promote trusting relationships and positive health habits (Girls Incorporated, 1990).

The Girls Incorporated affiliates worked diligently to establish appropriate relationships with comprehensive clinics, but building the

bridge took from 6 months to 2 years. The bridges established in the four sites represented a range of adherence to the model. For example, in one site the health professional who visited most often was the clinic's social worker; in another the nurses who visited were volunteers from the local nurses' association, only some of whom had direct connections with the Health Bridge clinic. Sustained case management was more the exception than the rule. In general more variation occurs among the sites in this component than in the others.

## Methods

### Data Collection and Measurement

The principal measuring instrument was the annual survey, a questionnaire administered to the participants four times over a 3-year period: at the beginning of each program year (October 1985, 1986, 1987) before programming started, and at the end of the last program year (October 1988). For this report a 2-year time period was used to maximize the sample size. The annual survey included questions about sexual behaviors, attitudes toward pregnancy, educational and career expectations, and social and economic background.

Originally, eight Girls Incorporated affiliates, four acting as experimental sites and four as control sites were included in the research. Initial data analysis revealed, however, a substantial difference existed between the subjects from experimental sites and the subjects from control sites in several background characteristics usually associated with early pregnancy. Despite the project staff's effort to obtain comparable groups in terms of sociodemographic characteristics, the subjects from control sites turned out to be younger, predominantly white, and living in two-parent households. On the other hand, the subjects from experimental sites were older, mostly African-American, and living in households without fathers. Thus the young women from experimental sites were at higher risk of becoming pregnant than were those from control sites. Hence, in this report the program participants and the nonparticipants serving as a comparison group are from the four experimental sites.

The four Girls Incorporated affiliates, then Girls Clubs, that acted as experimental sites were selected from among communities that had an adolescent pregnancy rate higher than the national average. Each site administered all four components of the Preventing Adolescent Pregnancy

program and contributed to the further development and refinement of the model. Within each site, as many as possible of all girls and young women aged 12-17 were recruited as project participants and retained as participants for the duration of the study. Project participants were encouraged also to participate in all program components for which their age qualified them during the entire period of the study. Thus girls and young women volunteered to enroll in the program, and those who did not enroll were used as a comparison group.

In both the original eight-site design and in the eventual reliance on volunteers and nonvolunteers from the experimental sites, the design was less than ideal because of the absence of random assignment to the interventions. This factor was taken into account in designing the annual survey as well as the other instruments and procedures. Specifically, the survey included a range of variables that the literature associates with early experience of pregnancy, allowing for careful tests of self-selection bias. Thus though nothing substitutes for random assignment in eliminating self-selection bias, the current study allows for testing and reporting of its likely influence.

### Sample

A total of 343 girls and young women, aged 12-15 when the study began, comprised the sample. This group had the opportunity to participate in two or more program components during a 2-year period. The 12-15 age range maximized the sample size while limiting the age range, so that age would not account for most of the variance in the outcome variables. The girls and young women constituting the sample completed at least three consecutive annual surveys--in most cases the last three of the four--and had never been pregnant prior to their initial survey. About 69% (237) of the subjects, designated as program participants, participated in at least one program component at some time during a 2-year period. About 31% (106), designated as nonparticipants and serving as a comparison group, did not participate in any of the four components. Among the program participants, 133 participated in one program component, while 104 participated in two or more program components.

### Test for Self-Selection Bias

Common sense would suggest that the young women who volunteered to participate in two or more program components might also be

those at lower risk of pregnancy than those who participated in only one program component or did not participate at all. A number of variables often associated with early pregnancy were measured in the annual survey to allow for a test of self-selection bias. The measures of background characteristics (shown in Table 5.1) were compared among nonparticipants, participants in *one* program component, and participants in *two or more* program components. Table 5.1 indicates that the three groups of subjects were alike in all background characteristics. They were similar in age, racial and ethnic background, educational expectation, degree of association with others who experienced teenage pregnancy, and level of sexual activity at the baseline. In addition, the three groups of subjects were similar in family structure—a small proportion live in a household with a father and a much smaller proportion yet live in a household with siblings.

### Findings

As noted in the introduction, a major hypothesis of the study was that a comprehensive approach to pregnancy prevention would be more effective than a single approach. The analysis presented here tests that hypothesis by comparing those who participated in two or more program components with nonparticipants and those who participated in one program component on two outcome variables: sexual intercourse without birth control, and pregnancy experience of the participants.

#### Sexual Intercourse Without Birth Control

Table 5.2 shows the proportion of young women who reported having sexual intercourse without birth control during the last 4 weeks of the 2-year period. The table indicates that those who participated in two or more program components were as likely to engage in sexual intercourse without birth control as nonparticipants. The table also indicates that those who participated in two or more program components were significantly less likely to have sexual intercourse without birth control than those who participated in a single program component. Only 8.9% of those who participated in two or more program components had sexual intercourse without protection, compared with 20.6% of those

**Table 5.1** Sociodemographic Characteristics of 12- to 15-Year-Old Women According to Number of Programs Attended

Characteristics	Number of Programs Attended		
	0 (N = 106)	1 (N = 133)	2 or more (N = 104)
Older than 13	48.1 (106)	40.6 (133)	38.5 (104)
Mother's education higher than high school	37.2 (102)	40.5 (126)	35.8 (95)
Live in household with a father	32.6 (95)	33.3 (123)	33.3 (90)
Live with siblings	6.9 (87)	14.7 (102)	13.8 (80)
Job as a source of income	92.1 (101)	88.1 (118)	85.6 (90)
Unemployment as a source of income	16.2 (74)	12.9 (85)	14.7 (68)
Welfare as a source of income	19.4 (72)	16.7 (90)	28.0 (75)
<i>Racial and Ethnic Group</i>			
Black	82.1 (106)	84.2 (133)	82.7 (104)
White	12.3 (106)	9.0 (133)	12.5 (104)
Hispanic and others	5.7 (106)	6.8 (133)	4.8 (104)
<i>Religion</i>			
Catholic	12.4 (105)	14.6 (130)	9.7 (103)
Protestant	51.4 (105)	49.2 (130)	56.3 (103)
Other	36.2 (105)	36.2 (130)	34.0 (103)
<i>Academic performance</i>			
(GPA higher than 2)	66.0 (100)	62.6 (123)	62.3 (101)
Educational expectation	68.6 (105)	76.5 (132)	79.4 (102)
Mother pregnant before 18	47.5 (99)	47.5 (125)	37.6 (101)
Sister pregnant before 18	14.6 (96)	16.4 (116)	15.0 (94)
Girlfriend pregnant before 18	56.4 (101)	58.1 (117)	64.0 (100)
Sexually active at baseline	31.1 (106)	32.3 (133)	27.9 (104)

NOTE: Numbers without parentheses are percentages. Numbers in parentheses are the bases, which are the numbers of young women who answered the question. Based on t tests there were no significant differences among the groups on any of the background characteristics.

who participated in one program component. The odds ratio of 2.7 means that those who participated in one program component were more than two and a half times as likely as those who participated in two or more program components to engage in this risky sexual behavior. Those who participated in only one program component, however, were also more likely to engage in sexual intercourse without birth control than were nonparticipants. Although the difference was not statistically significant, this finding was contrary to the desired outcome. Overall, participants

**Table 5.2** Comparison of 12- to 15-Year-Old Women Who Participated in Various Numbers of Programs According to Having Sexual Intercourse Without Birth Control During the Last 4 Weeks of a 2-Year Period

Number of Programs Attended	Number of Young Women Who Had Sexual Intercourse Without Birth Control		Percentage of Young Women Who Had Sexual Intercourse Without Birth Control		Odds Ratio	p-value
	Number of Young Women Who Had Sexual Intercourse Without Birth Control	Number of Young Women Who Participated in the Study	Percentage of Young Women Who Had Sexual Intercourse Without Birth Control	Percentage of Young Women Who Had Sexual Intercourse Without Birth Control		
0	13	104	12.5	12.5	1.5	0.408
1	27	131	20.6	20.6	2.7	0.018
2 or more	9	101	8.9	8.9	1.0	—

NOTE: The odds ratio for each group was based on the contrast between that group and the participants who attended two or more programs.

and nonparticipants had similar likelihood of engaging in sexual intercourse without birth control.

To determine whether the findings remained when other factors were held constant, multiple logistic regression analysis was applied. Although no background characteristics differentiated the three groups of subjects as indicated by the tests for self-selection bias, age and having a girlfriend who was pregnant before age 18 emerged as important predictors of pregnancy (discussed in the next section). Thus these two variables were included as control variables in the analysis, using whether the subjects engaged in sexual intercourse without birth control during the previous 4 weeks of the 2-year period as the dependent variable.

Results of the analysis are shown in Table 5.3, which indicates the same pattern of relationship as the bivariate analysis between having sexual intercourse without birth control and the number of program components attended. Those who participated in two or more program components were less likely to engage in sexual intercourse without birth control than those who participated in one program component. The difference was nearly significant ( $p = .068$ ) when other variables were controlled. The odds ratio of 2.2 indicates that those who participated in one program component were more than twice as likely as those who participated in two or more program components to engage in unprotected sexual intercourse. But those who participated in two or

**Table 5.3** Results of Logistic Regression Analysis on Having Sexual Intercourse Without Birth Control During the Last 4 Weeks of a 2-Year Period Among 12- to 15-Year-Old Women ( $N = 311$ )

Variable	Logistic Regression Coefficient	p-value	Odds Ratio
Nonparticipant	.450	0.337	1.6
One-program participant	.793	0.068	2.2
Older than 13	.123	0.737	1.1
Girlfriend pregnant	1.044	0.015	2.8

NOTE: The nonparticipants and one-program participants were contrasted with two- or more-program participants, which was the omitted category in the dummy-coded variable.

more program components were not different from the nonparticipants in terms of likelihood of engaging in sexual intercourse without contraception. Also, the difference between those who participated in one program component and the nonparticipants diminished (not shown in the table) so that the likelihood of engaging in this risky behavior of the two groups was at similar levels (odds ratio = 1.4).

In sum, young women who participated in two or more program components were less likely to engage in sexual intercourse without contraception than were those who participated in one program component. This finding was nearly significant. Those who participated in two or more program components were not significantly different from nonparticipants in likelihood of engaging in sexual intercourse without birth control. Also, those who participated in one program component were as likely as nonparticipants to engage in sexual intercourse without protection.

#### Pregnancy Experience

The bivariate relationship between the number of program components participated in and pregnancy experience is shown in Table 5.4. Pregnancies in this analysis were those that occurred within the last 12 months of the 2-year period, as reported in the last survey taken. This measure allows time for participation in two or more program components prior to assessing the effect of participation on pregnancy, thus testing the hypothesis that a comprehensive approach is more effective.

**Table 5.4** Comparison of 12- to 15-Year-Old Women Who Participated in Various Numbers of Programs According to Pregnancy Experience During the Last 12 Months of a 2-Year Period

Number of Programs Attended	Number of Young Women Who Experienced Pregnancy	Number of Young Women Who Participated in the Study	Percentage of Young Women Who Experienced Pregnancy	Odds Ratio	p-value
0	13	106	12.3	2.8	0.062
1	9	133	6.8	1.4	0.527
2 or more	5	104	4.8	1.0	—

NOTE: The odds ratio for each group was based on the contrast between that group and the participants who attended two or more programs.

Table 5.4 shows the percentage distribution of young women who reported in their last survey becoming pregnant within the last 12 months, according to the number of program components they had attended. It indicates that those who participated in two or more program components were less likely to experience pregnancy than nonparticipants. Only 4.8% of those who participated in two or more program components reported becoming pregnant during the last 12 months. In contrast, 12.3% of nonparticipants experienced pregnancy. This finding was nearly significant ( $p = .062$ ). Participants who attended two or more program components and those who participated in a single program component had similar levels of pregnancy experience. Those who participated in one program component (6.8%) were less likely to become pregnant than nonparticipants (12.3%), although the difference was not statistically significant. Overall, those who participated in one or more program components were significantly less likely (5.9%) to experience pregnancy than those who had attended no program components (12.3%;  $p = .049$ ). The odds ratio of 2.2 suggests that nonparticipants were more than twice as likely as the participants to experience pregnancy (not shown in the table).

To determine whether the differences found in the bivariate analysis remained when other variables associated with pregnancy were controlled, multiple logistic regression analysis was conducted on the experience of pregnancy (Table 5.5). As mentioned earlier, although none of the background characteristics differentiated the three groups

**Table 5.5** Results of Logistic Regression Analysis on Becoming Pregnant During the Last 12 Months of a 2-Year Period Among 12- to 15-Year-Old Women ( $N = 311$ )

Variable	Logistic Regression Coefficient	p-value	Odds Ratio
Nonparticipant	.931	0.099	2.5
One-program participant	.354	0.552	1.4
Older than 13	.860	0.082	2.4
Girlfriend pregnant before age 18	1.064	0.075	2.9

NOTE: The nonparticipants and one-program participants were contrasted with two- or more-program participants, which was the omitted category in the dummy-coded variable.

of subjects, age and having a girlfriend who was pregnant before age 18 were found to have a significant association with pregnancy when taken together. Thus both were included in the logistic regression analysis to control for their effects on the outcome variable. The pattern of relationships in the logistic regression was much the same as in the bivariate analysis, with nonparticipants being about two and a half times as likely as those who participated in two or more program components to have become pregnant within the last 12 months prior to the last survey. This finding became marginally significant ( $p = .099$ ). Young women who participated in one program component again had levels of pregnancy experience similar to those who participated in two or more programs. In contrasting participants in one program component with nonparticipants (results not shown in the table), the nonparticipants were almost twice as likely as the participants in one program component to have become pregnant. This finding, however, did not reach statistical significance. Overall, the difference between participants (attended one or more program components) and nonparticipants was substantial and marginally significant when adjusted for age and having a girlfriend who became pregnant at age 18 (results not shown in the table). Nonparticipants were more than twice as likely as participants to have experienced pregnancy ( $p = .092$ ).

In sum, young women who participated in two or more program components were less likely to have experienced pregnancy than nonparticipants. The difference was marginally significant when age and having a girlfriend who became pregnant before age 18 were held constant. No significant difference was found between young women

**Table 5.6** Comparison of 12- to 15-Year-Old Women Who Participated in *One* Program According to Pregnancy Experience During the Last 12 Months of a 2-Year Period

<i>Program Attended</i>	<i>Number of Young Women Who Participated in One Program</i>	<i>Number of Young Women Who Experienced Pregnancy</i>	<i>Percentage of Young Women Who Experienced Pregnancy</i>
Will Power/Won't Power	84	3	3.6
Growing Together	15	2	13.3
Taking Care of Business	25	3	12.0
Health Bridge	9	1	11.1
Total	133	9	6.8

who participated in two or more program components and who participated in one program component in likelihood of becoming pregnant. The participants in one program component were less likely to have become pregnant than were nonparticipants, although the difference failed to reach statistical significance. Overall, young women who attended one or more program components were less likely to have become pregnant during the last 12 months of the 2-year period than those who attended no program components. This finding was marginally significant.

#### **Pregnancy Experience and Patterns of Program Participation**

Tables 5.6 through 5.8 present the pregnancy experience of the young women according to their patterns of participation in the program components. Table 5.6 shows the percentage distribution of pregnancy experience, according to which component of the program the 133 young women who attended only one program component had participated in. By far the greatest number of these (84) had participated in Will Power/Won't Power, and a relatively low 3.6% of them experienced pregnancy. The remaining percentages are above 10%, suggesting that participation in a single program component other than Will Power/Won't Power may not have been associated with less likelihood of pregnancy for this group of young women, though the sample sizes are small.

**Table 5.7** Comparison of 12- to 15-Year-Old Women Who Participated in *Two* Programs According to Pregnancy During the Last 12 Months of a 2-Year Period

<i>Program Attended</i>	<i>Number of Young Women Who Participated in Two Programs</i>	<i>Number of Young Women Who Experienced Pregnancy</i>	<i>Percentage of Young Women Who Experienced Pregnancy</i>
Will Power/Won't Power and Growing Together	32	0	0
Will Power/Won't Power and Taking Care of Business	4	1	25.0
Will Power/Won't Power and Health Bridge	18	0	0
Taking Care of Business and Health Bridge	16	1	6.3
Total	70	2	2.9

Table 5.7 shows that only 2 of the 70 young women who participated in two program components over the 2 years experienced pregnancy during the previous 12 months. Not all the logical combinations of two programs actually had any participants; in particular, 32 young women who attended Growing Together had also participated in Will Power/Won't Power, but none had participated only in Taking Care of Business or Health Bridge in addition to Growing Together. The largest number attended the two programs for younger girls, Growing Together and Will Power/Won't Power, and none of these participants reported pregnancy experience. None of the 18 participants in Will Power/Won't Power and Health Bridge reported a pregnancy in the last 12 months. The two young women in this group who reported pregnancies had participated in Will Power/Won't Power and Taking Care of Business, and in Taking Care of Business and Health Bridge, the two programs for young women aged 15-17.

Table 5.8 shows that only 1 of the 28 participants who had attended three program components reported experiencing a pregnancy within the last 12 months. This one pregnancy was reported by a young woman who had participated in Will Power/Won't Power, Growing Together, and Taking Care of Business. No pregnancies were reported by young women who had participated in one of the two program components for

**Table 5.8** Comparison of 12- to 15-Year-Old Women Who Participated in Three Programs According to Pregnancy Experience During the Last 12 Months of a 2-Year Period

<i>Programs Attended</i>	<i>Number of Young Women Who Participated in Three Programs</i>	<i>Number of Young Women Who Experienced Pregnancy</i>	<i>Percentage of Young Women Who Experienced Pregnancy</i>
Will Power/Won't Power, Growing Together and Taking Care of Business	9	1	11.1
Will Power/Won't Power, Taking Care of Business and Health Bridge	8	0	0
Growing Together, Taking Care of Business and Health Bridge	11	0	0
Total	28	1	3.6

girls aged 12-14 and both program components for young women aged 15-17.

Based on the pregnancy experience of young women and their pattern of participation in the program components, Will Power/Won't Power appeared to be the most effective single program component. This finding raised the question of whether participation in Will Power/Won't Power alone was effective in preventing pregnancy. To address this issue, multiple logistic regression was conducted using participation in Will Power/Won't Power as an independent variable. To control for the effect of the other program components, participation in these program components was entered in the logistic regression equation. Also, age and having a girlfriend who experienced teenage pregnancy were held constant.

Results of the analysis (shown in Table 5.9) indicate that the relationship between participation in Will Power/Won't Power and becoming pregnant during the last 12 months of the 2-year period was not significant. Thus Will Power/Won't Power or any of the other program components taken singly did not reduce the likelihood of becoming pregnant among young adolescents aged 12-15 during the last 12 months of the 2-year period.

**Table 5.9** Results of a Logistic Regression Analysis on Becoming Pregnant During the Last 12 Months of a 2-Year Period Among 12- to 15-Year-Old Women Who Participated in Any of the Four Programs

<i>Variable</i>	<i>Logistic Regression Coefficient</i>	<i>p-value</i>	<i>Odds Ratio</i>
Will Power/Won't Power nonparticipant	.559	0.296	1.7
Growing Together nonparticipant	-.595	0.317	0.6
Taking Care of Business nonparticipant	.719	0.236	2.1
Health Bridge nonparticipant	.198	0.759	1.2
Older than 13	1.130	0.044	3.1
Girlfriend pregman before age 18	.998	0.093	2.7

### Discussion

This analysis tested the hypothesis that a comprehensive approach to primary prevention of adolescent pregnancy for young women is more effective than a single approach. That is, the Girls Incorporated program Preventing Adolescent Pregnancy consisted of four components, two each for two age groups and each with different objectives related to enabling young women to avoid pregnancy. The question is whether the components work together toward pregnancy prevention. Analyses were conducted on two outcome variables—sexual intercourse without birth control (a measure of behavior putting one at risk of pregnancy), and pregnancy experience.

Participants and nonparticipants were not randomly assigned but instead chose their level of participation. Tests for self-selection bias indicated that the groups were not significantly different on any background variables ordinarily associated with risk of early pregnancy.

Young women who participated in two or more program components were less likely than those who participated in one component to engage in the risky behavior of having sexual intercourse without birth control during the previous 4 weeks of the 2-year period. This finding was nearly significant. Neither the participants in two or more program components nor the participants in one component, however, were significantly different from the nonparticipants in the likelihood of having sexual intercourse without contraception. Thus the findings on this risky behavior are inconsistent and difficult to explain.

On the incidence of pregnancy, young women who participated in two components were less likely to become pregnant than nonparticipants, a marginally significant result. Though no significant difference was found in pregnancy experience between young women who participated in two components and those who participated in one, a 50% (but nonsignificant) reduction occurred in pregnancies when comparing participants in one component with nonparticipants. Thus the difference between participation and nonparticipation is interpreted to be the programmatically important one, even though the difference reached marginal significance at the level of two or more components. A ceiling effect may be operating so that participating in a second, third, or fourth component does not substantially reduce the likelihood of pregnancy beyond participating in the first program component. Overall, participation in one or more components was related to less likelihood of becoming pregnant, a marginally significant result. These findings provide weak support for the hypothesis that more comprehensive program participation is better than no program participation or a single approach in preventing teenage pregnancy.

Still unclear is how the programs might be working to prevent pregnancy. The expectation is that the programs reduce the likelihood of engaging in the risky behavior of having sexual intercourse without birth control. But the findings are inconsistent—overall the young women who participated in programs were less likely to become pregnant but not less likely to have sex without birth control than the nonparticipants. Possibly the program participants who were sexually active were using more effective methods of birth control than the sexually active nonparticipants, though this relationship has not been tested. Another possibility among these young adolescents is that they may be using effective methods ineffectively, resulting in pregnancy in spite of their efforts to prevent it. Nevertheless, the findings fail to support the hypothesis that comprehensive participation leads to reduction in risky sexual behavior.

The bivariate analyses suggested that Will Power/Won't Power, the assertiveness program for girls aged 12-14, was the most effective component, based on experience of pregnancy. Further analysis was thus conducted to test whether the prevention of pregnancies could be attributed to participation in Will Power/Won't Power alone. The results indicated that neither Will Power/Won't Power nor any other single component taken alone was responsible for the reduction in pregnancy.

### *Programmatic Recommendations*

Girls Incorporated conducted a longitudinal study of a comprehensive model of pregnancy prevention attuned to the age and developmental stage of girls and young women ages 12-17. First, one important finding is simply that some of these young women reported having sexual intercourse without birth control and some reported experiencing pregnancy. This finding suggests that young women at risk of pregnancy are not only those who are socially isolated and that the young women who participate in Girls Incorporated (and by inference in other community-based organizations) are not systematically drawn from some segment of society immune to pregnancy risk. This in turn suggests an important role for community organizations, as well as schools, families, and providers of health services, in intervening to help young people avoid pregnancy in their teen years.

Second, the findings presented here are encouraging, though not dramatic, in suggesting that offering programs carefully designed to prevent pregnancy is worth the effort, and a comprehensive approach is worth the additional trouble. It seems that some merit exists in the comprehensive approach and no one program can account for all the pregnancies apparently prevented.

Perhaps even more than the moderately encouraging results of these data, the experience of designing, developing, testing, and refining the program components has yielded insights about the developmental appropriateness of various approaches to pregnancy prevention. By the time the curricula were published and training was offered to Girls Incorporated affiliates across the nation, Will Power/Won't Power had been conducted at least 56 times by the affiliates acting as experimental sites, Growing Together had been conducted more than 30 times, and Taking Care of Business more than 20 times. Refinements in the existing curricula and priorities for the next "level" of each of these components was based largely on the assessments of the trained staff who were conducting the sessions. As noted earlier, the participants were not at all eager to sign up for a second "level" of a program with the same name in the second and third years, so the final curricula incorporate the best topics and activities from all the versions of each program component.

### Growing Together Revisited

The staff who delivered Growing Together in the experimental sites immediately reported difficulty in recruiting pairs of parents and daughters to participate. To get any group together, the sites offered light meals and child care for younger children during the sessions, transportation, and parent-to-parent contact to remind participants of each meeting. These special services are still recommended, because it is quite difficult for many low-income and single-parent families to participate in such programs without them. But it soon became clear to the staff that many girls aged 12-14 considered themselves too old for this program, at least in some communities.

Staff reported that girls at ages 9 and 10 had rapport with their mothers and thought of them as trustworthy and knowledgeable, but by the time girls were ages 12 and 13 their mothers had curiously lost much of their intelligence and knowledge—a developmental phenomenon noted by many parents and other experts. Many mothers in turn, they reported, were intimidated by their daughters' apparent knowledge of reproductive anatomy and other issues in sexuality. And staff noted that tension was already present in many parent-daughter pairs over expectations for dating, dress, and unsupervised time. The data later told us that about one fifth of the girls this age in the experimental sites had initiated sexual intercourse. These issues were addressed to some degree by adapting the curriculum during the study, but the major lesson is that this program in family communication about sexuality, now that the study is over and the age range can be changed, is recommended and being implemented for girls aged 9-11 and their parents.

### Will Power/Won't Power Revisited

From the beginning Will Power/Won't Power was popular with both girls and staff members at the experimental sites. The exercises identifying social and peer pressure to be sexually active, considering the consequences of sexual involvement and pregnancy at their age, developing and practicing assertiveness skills, and rehearsing resistance to pressure lines and avoidance of risky situations seemed both enjoyable and developmentally appropriate.

Several changes and additions to Will Power/Won't Power are included in the published version. One is the formation of a sorority of the participants, pledging to support one another's decisions to resist

pressure in social situations, during the seventh of the eight sessions. The theme that peer pressure is negative but peer support can be positive is emphasized throughout the program and is consolidated in the session on sisterhood. Even more practice in assertiveness is included in the final than in the initial version, along with more discussion of the right to decline sexual involvement. More guidance is given for leaders in including girls who have already initiated sexual intercourse in the decision to abstain until they are older.

In the analysis reported here, Will Power/Won't Power seems to be an effective component of the comprehensive approach. As noted earlier, the development of resistance skills based on social learning theory has positive evaluation results in other programs for early adolescents. In Girls Incorporated this component is the least expensive component to implement. Because staff already have many of the small-group, interactive skills needed to implement the program, it can be offered during regular center hours, and recruitment requires no extraordinary effort. Girls Incorporated will continue to recommend that affiliates implement Will Power/Won't Power as a program girls this age have a right to, and as a possible help in their avoiding pregnancy. Some young women, even if they delay the initiation of sexual intercourse, eventually become sexually active while still in their teens, and they need information and resources for practicing effective contraception.

### Taking Care of Business Revisited

Building on the experience of staff who implemented it, the published version of Taking Care of Business includes far fewer pencil-and-paper exercises than the initial version. The final version is a balance of information, resources, and skills for avoiding pregnancy and sexually transmitted disease, including a positive and realistic look at abstinence as an option, with activities and resources for setting goals, and planning for further education, career, and family life.

Middle adolescents aged 15-18 are more difficult than younger girls for Girls Incorporated (and probably other youth organizations) to recruit and retain. The experimental sites were most successful when they already had a contingent of teens involved or made Taking Care of Business part of youth employment or career exploration opportunities. Girls Incorporated suggests conducting a needs assessment before delivering Taking Care of Business, and offering it if a life-planning course of high quality is not already available at school or in other

community organizations. Though conducted by adults during the study, the current recommendation is to train and include peer educators, especially college students, in delivering the program. Programs that pursue the life options model seem to provide teens aged 15-18 with information, intellectual and emotional support, and skills in assertiveness and decision making that may help them avoid pregnancy during the teen years.

#### Health Bridge Revisited

Health Bridge was by far the most expensive and most difficult of the components to establish. The affiliates worked diligently to work through doubts raised by their volunteer boards of directors, to find compatible clinics sympathetic to teens' health needs, to establish mutually satisfactory arrangements and eventually contracts with the clinics, and to raise the funds to put Health Bridge into place on an ongoing basis. They went through false starts and periods of frustration. Among the clearest messages once the bridges were in place is that girls younger than 15 were much more eager to spend time with the nurse at the Girls Incorporated center and more willing to admit they needed information and advice than those aged 15-17 who were eligible to participate. Thus the published guide and training team recommend that Health Bridge be planned for girls and young women aged 12-18. The set of educational resources developed to accompany the Health Bridge delivery system intentionally has not been published, to focus attention away from the educational services and toward the critical connections and individual attention that seem to reduce the barriers to effective contraception among sexually active young women.

Discussions with colleagues suggest that the combination of affordable, accessible, and anonymous medical services; a knowledgeable and nonjudgmental health professional familiar to the teen; and assertive intake and follow-up on health, including reproductive health, is available in relatively few communities. The combination can be and has been accomplished in some school-based and school-related clinics. The Health Bridge experiment suggests that some version of it can be accomplished by a youth organization or other community group. Some communities might need a broader network of services, but evidence from other studies and indications from this one suggest that access and diligence in contraceptive use are key components of a comprehensive approach to adolescent pregnancy prevention.

#### *Recommendations for Evaluation*

The study of the Girls Incorporated Preventing Adolescent Pregnancy program is one of the few of this scope and duration undertaken directly by the research staff of a community-based organization. The commitment of the participating experimental (and control) sites led to the collection of a data set of significant size and quality, one of the few longitudinal data sets on the sexual behavior of adolescents, especially those at high risk of pregnancy, and one of very few evaluating interventions designed to prevent pregnancy.

The decision was deliberately made at the design stage to use tests of self-selection, and experimental and control sites, rather than random assignment, to establish comparison groups. In this study the selection and maintenance of control sites in other cities was expensive, very difficult for them as they felt pressure to "do something" about high levels of adolescent pregnancy, and as it turned out, not productive because the background characteristics and pregnancy risk of the control sites were too different from the background characteristics of the experimental sites in spite of careful site selection. By serendipity the comparison groups from the experimental sites turned out to be a preferable substitute for the control sites: the young women function in the same environments and have quite similar backgrounds to those who participated in the program. Though this was anticipated to some degree and diligence was exercised to keep the nonparticipants for the duration of the study, one would hesitate to design a full study in which those who did not volunteer for the program constituted the comparison group. They might be systematically different; and knowing the pool of nonparticipants needed to be a certain size could undermine efforts to recruit every eligible participant into the programs.

A form of random assignment to experimental and control groups that violates as little as possible the principle that beneficial programs in a youth organization should be open to all members who are eligible by age, previous participation, and other normal criteria solves many of the problems of scientific evaluation. The advice is to use random assignment any time a practical and ethical system to do so can be devised, and otherwise to create a comparison group in the same city as the experimental group. Finding comparable individuals or organizations may be a serious challenge, however. One reason the response rates were maintained at a relatively high level in this study is that the national organization has considerable leverage with all the cooperating

sites, built on mutual esteem, pass-through funds, reasonable responses to their hardships, and a competitive process to choose them. It would be very difficult to sustain this relationship with organizations that had little to gain from a successful evaluation. The researcher would need substantial resources to be able to track and attract the control subjects.

In the ideal world the program components would be implemented, refined, and established in final form before a quantitative evaluation was undertaken. The decision was made in 1985 that enough was known about these four pregnancy prevention models to begin implementation and testing at the same time, and though not ideal, the same decision would probably be made today. In this study a conflict existed between sustaining the quasi-experiment by adhering to the established age groupings of 12-14 and 15-17, and revising the age groups recommended for Growing Together and Health Bridge. The research design held sway, and the programs were adapted only after the 3-year period of the study.

Practically speaking, it would have been very difficult indeed to stretch the research process out even further by testing the programs extensively (presumably in other affiliates to avoid contaminating the study sites) before collecting baseline data. For example, affiliates that have begun to implement the program and their funders are understandably impatient for news about whether the program is effective in preventing pregnancy. In part as a response to the urgency felt in Girls Incorporated communities to "do something" about this important problem, the programs were made available to affiliates for implementation before the quantitative analyses were being reported. Adding another 2 or 3 years to the process of research and development might well have exceeded the limits of patience in these communities, leading affiliates to adopt other and probably untested interventions.

Despite the large total sample size, the design required grouping of subjects and the control of a number of variables. The resulting sample sizes for a given program year were small. More definitive tests and conclusions thus had to wait until the 3-year sample could be combined. Though the early years were well spent in coding, file construction, discussion with a distinguished panel of advisors, and exploring various strategies for analysis, much of the final work has been done at a rapid pace since the final data were collected in January 1989. The published curricula thus reflect the experience of the practitioners and only the earliest results of the quantitative research. The disadvantage of this is mitigated by the advantage of having a trained implementation team

ready to accept adaptations to the curricula as further research results become available.

### Summary

Girls Incorporated conducted a longitudinal study of a comprehensive approach to helping young women aged 12-17 avoid pregnancy in the teen years. Participation in one or more components of the program was associated with a 50% (but not statistically significant) reduction in the incidence of pregnancy, and participation in two or more components was marginally significant in reducing pregnancy. No single program component accounted for the reduction, suggesting that it may be important to offer program components for different age groups and with different objectives. The pattern of sexual intercourse without birth control was inconsistent, leaving unexplained the mechanism by which the program worked to reduce pregnancy. Overall, the findings were encouraging, though not dramatic, that the program implemented by this youth organization helped reduce the risk of pregnancy among the young women who participated. Girls Incorporated recommends that its affiliates implement the comprehensive program Preventing Adolescent Pregnancy.

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## Life Options and Community Service Teen Outreach Program

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### Introduction

Teen Outreach is a school-based program for adolescents that was designed originally to prevent early pregnancy and to encourage regular progress in school. The program seeks to reach its goal through a combination of small group discussion strategies using its own curriculum and by providing volunteer service experience in the community for its young participants. It is, in other words, a program in the "life options" tradition of teen pregnancy prevention programs (Dryfoos, 1990; Hayes, 1987) and a program that has amassed several years of evaluation data showing positive results.

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In 1981, the Junior League of St. Louis assumed a major role in promoting and funding the Teen Outreach program, which had begun in 1978 as a collaborative effort between the Danforth Foundation and the St. Louis Public Schools. In 1983, funding was obtained from the Charles Stewart Mott Foundation to begin a 3-year national replication of Teen Outreach. By 1987, a second 3-year national replication effort began under the direction of the Association of Junior Leagues International, in cooperation with the American Association of School Administrators.

Teen Outreach has maintained a nationwide evaluation system to monitor program outcomes since 1984. This chapter reports the data produced by that system, with special emphasis on data from the fifth year of this monitoring, the 1988-1989 school year. This latter year is emphasized because it is the most recent for which analysis is complete and because it was the first year in which the program had any substantial number of teens who were assigned randomly to the program or control groups for evaluation. In addition, however, the chapter compares these last year results with those from the other four years of evaluation in order to make clear the general pattern in program outcomes for Teen Outreach.

### Program Components

Teen Outreach is a school-based program that is most often run through the collaborative efforts of a local Junior League, local school personnel, and, when the League is not the funder, a local funder as well. The program has two main components: use of a curriculum in small group discussion sessions led by a facilitator, and involvement of young people in volunteer service in the community.

The curriculum and volunteer service are the core components of Teen Outreach and are shared by all its sites nationwide and in Canada. Beyond these commonalities, however, are variations in program implementation, shown in Table 6.1. Most Teen Outreach programs are offered after school hours, with about one third offered during school; slightly less than half are offered for credit.

The students in Teen Outreach meet at least once per week throughout the school year and engage in discussions on such topics as understanding themselves and their values, communication skills, human growth and development, issues related to parenting, and family relationships and community resources. While the curriculum does contain

Table 6.1 Selected Variations in the Teen Outreach Program Among Sites: 1988-89

<i>Percentage of Programs Offered</i>				
During school	31%	For credit	46%	
After school	69%	No credit	54%	
<i>Curriculum Unit</i>	<i>Reported Coverage of Unit</i>			
	<i>None</i>	<i>A Little</i>	<i>A Lot</i>	<i>Almost All</i>
Orientation	6	31	23	40
Volunteer experience	6	31	34	28
Understanding yourself	0	11	51	37
Values	3	31	34	31
Life planning	8	26	43	23
Communication	6	28	37	28
Life pressures	11	23	23	43
Family	6	31	34	28
Relationships	6	20	37	37
Growth/development	23	40	14	23
Parenting	28	31	23	17
Issues in parenting	28	43	11	17
Community resources	20	43	26	11

some traditional sex education information, this is not its primary emphasis. In fact, as the data in Table 6.1 show, the curriculum units on these topics are covered less thoroughly by facilitators than are other topics.

The style of the curriculum is to utilize group discussions and activities that are facilitated rather than taught. The best facilitators in the program become mentors and friends for their Teen Outreach students and create a support-group environment in which students are assured of understanding and confidentiality from both peers and the facilitator. Facilitators for the program often receive training at the annual national Teen Outreach conference, in which a variety of workshops are held to acquaint them with the structure of the program, its curriculum, and the facilitator style that the program seeks. Some facilitators have been trained by those who have been running the program in their local areas or by personnel from the Junior League.

The volunteer activities in the program vary widely in their settings and tasks, reflecting variations in community needs and in the ages and

**Table 6.2** The Growth of Teen Outreach, 1984 to 1990

School Year	Students	Cities	Sites
1984-85	148	8	9
1985-86	444	16	24
1986-87	632	15	35
1987-88	782	14	44
1988-89	1078	28	60

circumstances of the Teen Outreach students. These activities are most often coordinated by the local Junior League and have included work in hospitals and nursing homes, participation in walkathons, work at the school itself, tutoring for younger students, and many other types of work.

Teen Outreach sites do not all offer the same number of classroom hours or the same number of volunteer hours for each student. The minimum standards at Teen Outreach sites are that students should meet for 1 hour per week for a year and that each student should perform a minimum of 1 hour per week of volunteer work.

### *Characteristics of Teen Outreach Students*

Table 6.2 shows the growth of Teen Outreach since 1984. The number of Teen Outreach sites increased from 9 in the 1984-85 school year to 60 in 1988-1989. During the same period of time, the number of students enrolled in the program increased by almost seven-fold, to over 1,000 in the 1988-1989 school year. Teen Outreach has always been located in geographically dispersed areas of the United States. The first Canadian site was added in the 1985-1986 school year.

Local Teen Outreach sites range in size from 5 students in Bristol, Rhode Island, to 23 students in Charlotte, North Carolina. Middle schools, junior highs, and senior highs all serve as sites for Teen Outreach. The average Teen Outreach site enrolls 15 students in a single section of the program.

Teen Outreach students enter the program in a variety of ways. At most schools, they volunteer to participate, responding to announcements of the program on posters or in the school media. At other sites,

students are sought out by the Teen Outreach facilitators or by school counselors because they are believed to be "high risk" for school leaving or pregnancy. At still other schools, facilitators seek out students who are not yet exhibiting negative behaviors but who could become high risk. Table 6.3 shows the characteristics of the national sample of Teen Outreach students and their comparisons in 1988-1989. Data for each of the 5 years of evaluation show similar characteristics.

Over 75% of those enrolled in Teen Outreach nationwide are females. They range in age from 11 to 21, with an average age of 14.9 years. A similar range occurs in grade level, with students as young as the fifth grade and as old as high school seniors. About 40% of the Teen Outreach students are black, another 40% are white, and 13% are Hispanic. Those in other race/ethnicity groups include mostly Native Americans and Asians.

About 41% of these young people come from nonintact families, and about a fifth have mothers and fathers with less than a high school education. Much variation exists in the socioeconomic level of the families of Teen Outreach students, however, since almost 30% of their mothers have at least some college education. In each year of the evaluation, the Teen Outreach and comparison students have been generally well matched on the characteristics shown in Table 6.3. In 4 out of the 5 years, however, some variables were not matched. For example, in 1988-1989, students in Teen Outreach were significantly more likely than their comparisons to be female. In Years 3 and 4, more Teen Outreach students than comparisons came from nonintact families, and in Year 1, Teen Outreach students came from school grades lower than did the comparison students. In each year's analysis, these differences were controlled in the multivariate analyses, as will be illustrated below.

### *The Evaluation Design*

The evaluation design for Teen Outreach relies on the utilization of common reporting forms at all sites. Each site recruits a local comparison group at the beginning of the school year, preferably using true random assignment procedures. When this is not possible, the comparison students are generally named by the program participants as young people they know who might have filled out the intake form "about like you did." In 1988-1989 five sites were able to use randomization

**Table 6.3** Demographic Characteristics of Teen Outreach and Comparison Students: 1988-89

Characteristics	Teen Outreach Students		Comparison Students	
	N = 495	% = 100	N = 490	% = 100
<b>Sex</b>				
Male	116	23.6	159	32.5
Female	375	76.4	330	**67.5
<b>Age</b>				
11-13	52	10.6	61	12.5
14	144	29.5	142	29.0
15	143	29.2	131	26.8
16	80	16.4	82	16.8
17	52	10.6	47	9.6
18-21	18	3.7	26	5.3
Average		14.9		14.9
<b>Grade</b>				
5-7	32	6.5	46	9.4
8	70	14.3	53	10.9
9	169	34.3	182	37.5
10	105	21.4	100	20.5
11	73	14.9	60	12.3
12	42	8.6	46	9.4
Average		9.5		9.4
<b>Sibs</b>				
0-1	163	33.2	145	29.7
2-4	229	46.6	245	50.2
5 or more	99	20.2	98	20.1
Average		2.8		2.9
<b>Race</b>				
Black	197	40.1	191	39.1
White	199	40.6	209	42.7
Hispanic	66	13.4	62	12.7
Asian	3	0.6	6	1.2
Native American	23	4.7	17	3.5
Other	3	0.6	4	0.8
<b>Lived with</b>				
Mother and father	288	58.8	281	57.6
Mother only	171	34.8	161	33.0
Father only	9	1.8	9	1.8
Guardian	10	2.0	13	2.7
Other arrangement	13	2.6	24	4.9
<b>Mother's education</b>				
Less than high school	99	20.3	85	17.5
High school graduate	181	37.0	173	35.6
Some college	89	18.2	89	18.3

**Table 6.3** Continued

Characteristics	Teen Outreach Students		Comparison Students	
	N = 495	% = 100	N = 490	% = 100
College graduate plus	52	10.6	74	15.2
Don't know	68	13.9	65	13.4
<b>Father's education</b>				
Less than high school	83	16.9	75	15.4
High school graduate	147	30.0	140	28.8
Some college	64	13.1	64	13.1
College graduate plus	63	12.9	93	19.1
Don't know	133	27.1	115	23.6

NOTE: \*\*Difference between the Teen Outreach and comparison students is statistically significant at  $p < .01$ . The totals vary somewhat from 495 (Teen Outreach students) and 490 (comparison students) due to missing information on some variables.

procedures to assign students to their Teen Outreach or control groups. This chapter presents data separately for these five randomized sites, as well as for the total program samples in each year.

The evaluation of Teen Outreach has always monitored the following outcome variables for both program students and their comparisons: school suspension, failure of courses in school, dropping out of school, and pregnancies.

In 1988-1989, data were also gathered on arrests, skipping school, use of alcohol or marijuana, having sexual intercourse, using contraception when sexually active, joining after-school activities, getting an award, getting on the honor roll, and educational aspirations.

These outcomes were added to produce a fuller picture of other impacts that Teen Outreach might be having on young people and to include some positive outcomes to those already monitored.

The evaluation is thus somewhat demanding for a school-based program of this kind, in that it measures almost exclusively behavioral outcomes, neglecting the traditional emphasis on participant testimonials, knowledge change, or attitude change. The evaluation system for Teen Outreach seeks to report outcome measures on these variables at the end of the school year for all students originally enrolled in the program, regardless of their attendance at the program or their volunteer work patterns. Data are collected, however, on how much exposure to Teen Outreach each student receives.

**Table 6.4** Information on the Evaluation Samples

Year	Total Number of Sites	Sites Participating in Evaluation	Percentage Loss to Follow-up Between Intake and Exit*	# Teen Outreach Students	# Comp Students
1984-85	9	9	10.2	151	151
1985-86	24	22	4.0	444	542
1986-87	35	35	3.8	632	848
1987-88	48	44	5.8	823	912
1988-89	60	35	10.1	495	490
1988-89 Random assignment sample	5	5	0.0	79	89

NOTE: \*Among participating sites.

Table 6.4 shows how many of the Teen Outreach sites in each year participated in the evaluation and the rates of loss to follow-up in each of these years. When the number of Teen Outreach sites was small, every effort was made to ensure full participation in the national evaluation. As the number of sites has become larger, participation in the evaluation (which must, of course, be voluntary) has been less, even while the actual number of students on whom data are available continues to grow. Only in the 1988-1989 school year was the participation rate in the evaluation worrisome. This lower participation rate was most probably due to the difficulty of maintaining communication with the rapidly growing number of sites participating in Teen Outreach. Unfortunately, it is not possible to tell how sites that participate in the evaluation may differ from those that do not. A 5-year comparison of the characteristics of students in the program for whom data were reported in the evaluation, however, demonstrates little change. A random sample of about one third of the program sites has been chosen in 1990-1991 to participate in the national evaluation.

For sites that have furnished evaluation information, loss to follow-up between program intake and exit has been acceptably low. This rate has not risen above 10.2% and in most years has been considerably lower. The rate of loss is slightly higher among comparison students than among Teen Outreach students, as might be expected.

Since the sample size in 1988-1989 permitted such an analysis, the demographic characteristics of Teen Outreach students who were lost were compared with those same characteristics among the comparison students who were lost. Age, gender, race, parents' education, or family intactness did not differ, but the two lost samples did differ in two other ways. The lost Teen Outreach students were more likely to have received awards in school in the previous year than were the students from the comparison group who were lost. Also, the lost Teen Outreach students were less likely to report being previously suspended than were the lost comparison students. Since overall loss was so low, these differences are unlikely to affect the conclusions reported here. Also, these variables on prior status of Teen Outreach and comparison students are controlled in relevant analysis.

#### *Risk Factors at Program Entry*

Table 6.5 shows the baseline or program entry measures of program outcomes for students in the 1988-1989 sample. Again, these data are similar across all 5 years. It is important to examine these factors as they appeared when the Teen Outreach and comparison students entered the program year in order to (a) describe the kind of population being served by Teen Outreach, and (b) ensure that these are indeed two well-matched groups of students.

In the year before entry into the program, over 4% of the Teen Outreach students had already been pregnant at least once. Over 17% of them had been suspended, and 5% of them reported having been arrested. Almost 40% reported failing courses in the year before the program began, and more than 30% had skipped school. More than a third had used alcohol or marijuana during the past month, and more than a fifth had had intercourse during that month. Only 41% of those having had intercourse had used any form of contraception.

On the positive side, almost 60% said they had received some kind of an award. Slightly more than a fourth were on the honor roll in the previous year. Virtually all the students asserted at the beginning of the school year that they intended to complete both high school and college, an overstatement of likely achievement.

Again in each year of the evaluation, one or another of these factors has not been perfectly matched between Teen Outreach and the comparison groups. For example, in 1988-1989, the Teen Outreach students

**Table 6.5** Status of Teen Outreach and Comparison Students at Intake: 1988-89

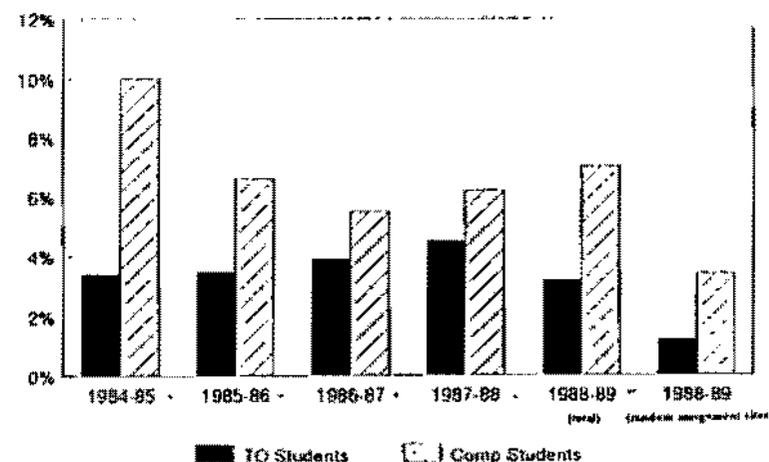
Characteristics	Teen Outreach Students		Comparison Students	
	N = 495	% = 100	N = 490	% = 100
<b>Negative Behaviors</b>				
Ever been pregnant or caused a pregnancy	22	4.5	38	7.8
Last year ever -				
get suspended	85	17.3	86	17.6
get arrested	25	5.1	27	5.5
fail courses	190	38.8	190	39.2
skip school	151	30.9	141	29.1
Last month ever -				
used alcohol/marijuana	129	33.7	121	31.7
had intercourse	81	21.2	84	22.4
used contraception	33	40.7	47	55.9
<b>Positive Behaviors</b>				
Last year ever -				
get awards	283	57.9	251	51.3
get on the honor roll	126	25.7	149	30.5
<b>Educational Aspirations</b>				
Complete high school				
likely	480	98.0	474	97.7
unlikely	10	2.0	11	2.3
Complete college				
likely	397	81.0	387	79.6
unlikely	93	19.0	99	20.4

NOTE: \*Difference between the Teen Outreach and comparison students is statistically significant at  $p < .05$ .

were significantly less likely than their comparisons to have been pregnant before they began Teen Outreach. Teen Outreach students were also more likely to have gotten awards prior to the start of the program year.

### The Outcomes of Teen Outreach

Figures 6.1 through 6.4 show the impact of Teen Outreach on the four major outcome variables of interest: pregnancy, school suspension, course failure, and school dropout. Figure 6.1 shows the percentage of Teen Outreach and comparison students who became pregnant during

**Figure 6.1.** Percentage Pregnant or Causing Pregnancy.

each of the 5 program years and in the random assignment sample in 1988-1989. The percentage data shown in this figure and in the three to follow are without any controls for background differences between these two samples of students. The figure also shows, however, the results of multivariate analyses using logistic regression. In each year, grade level of the students and prior suspension history were included in the multivariate equation. In addition, other variables were introduced into these equations if the Teen Outreach and comparison students differed on the variable (e.g., gender in 1988-1989) or if the variable might confound the results (e.g., failing courses was also controlled in the suspension equation). The specific variables in each equation thus varied somewhat from year to year. The asterisks at the bottom of each year's data indicate whether participation in Teen Outreach was still significantly related to the outcome variable of interest, net of these other variables.

Figure 6.1 shows that in all six samples, Teen Outreach students had lower pregnancy rates during the program year than did the comparison students. In all but the random assignment sample (which was too small to permit analysis), participation in Teen Outreach was significantly related to having a lower pregnancy rate.

Figure 6.2 shows the percentage of Teen Outreach and comparison students who were suspended from school in each of the six samples.

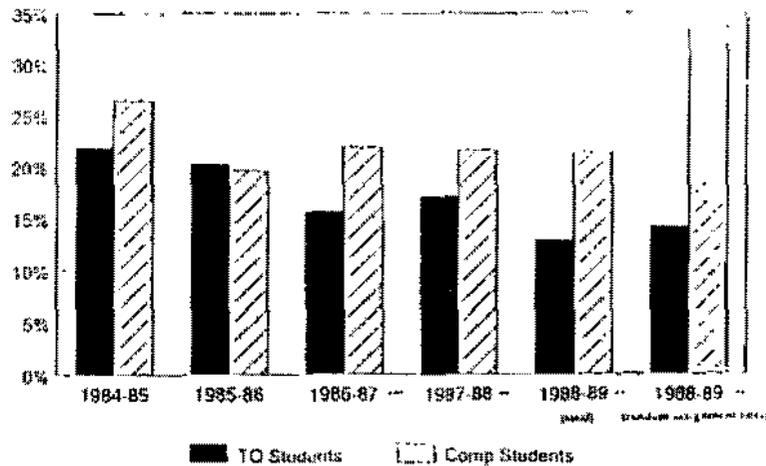


Figure 6.2. Percentage Suspended During Program Year.

In five of the six samples shown, Teen Outreach students had lower rates of school suspension than did comparison students. In four of the samples, including the smaller random assignment sample, participation in Teen Outreach was significantly related to lower rates of suspension, net of grade, prior rates of suspension, failing courses, and selected other variables introduced in a given year to control for sample differences.

In Figure 6.3, comparable data are shown for rates of failing courses during the program year among Teen Outreach and comparison students. Again, in five of the six samples, Teen Outreach students were doing better at the end of the program year. In four samples, participation in Teen Outreach was significantly related to lower rates of course failure, net of grade, prior rates of failure, and other necessary variables introduced in a given equation to control sample differences.

Figure 6.4 offers data on school leaving in the same six samples. In all six samples, Teen Outreach students had lower rates of dropping out. Again, in four samples, participation in Teen Outreach was significantly related to lower rates of dropping out when grade, pregnancy during the program year, and selected other variables were controlled.

As noted above, the 1988-1989 evaluation data set also included some additional outcomes not common to all six samples. An examination of these outcomes showed that participation in Teen Outreach was

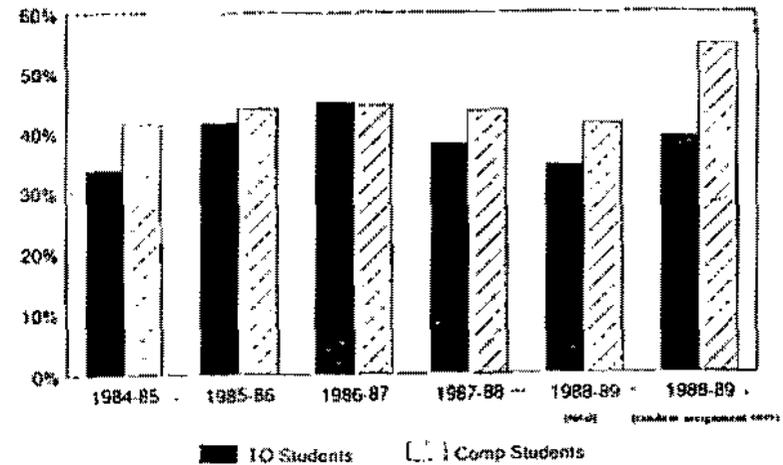


Figure 6.3. Percentage Failing Courses During Year.

significantly related to not getting arrested, skipping school less frequently, more regular use of contraception among sexually active students, getting awards, and getting on the honor roll, again net of the prior history of these behaviors and selected background characteristics. Participation in Teen Outreach was not significantly related to less use of alcohol or marijuana or to raising aspirations to finish high school, although both of these differences favored Teen Outreach students.

#### Correlates of Teen Outreach Success

In data published elsewhere (Allen, Philliber, & Hoggson, 1990), the correlates of successful change among students in Teen Outreach have been examined. The focus of this analysis was to assess under which conditions and for which kinds of participants this program was most successful. This analysis found that the sites that served primarily older students had lower levels of student problem behaviors at program exit, after controlling for problem behaviors at entry. In addition, programs that most fully implemented the volunteer component had greater success.

Equally important are the findings on which variables did not seem related to program success. Analysis has not found any relationship between gender of students and program success. Minority status of students is likewise not related to success, nor is parent education.

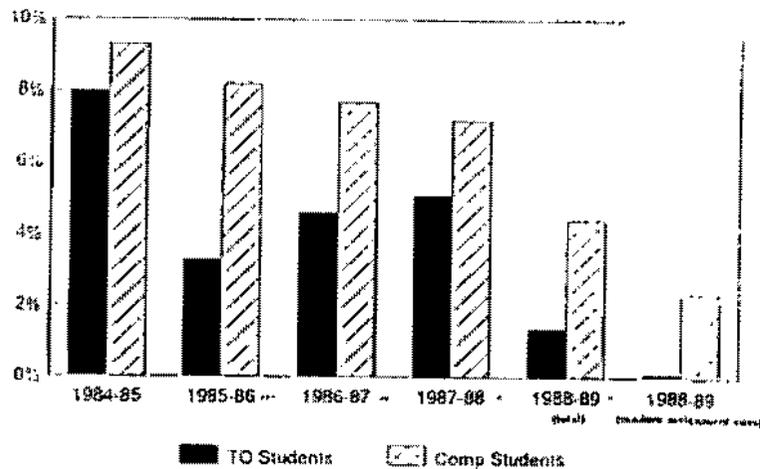


Figure 6.4. Percentage Dropping Out of School.

Several program characteristics or variations are also not related to program success. These include classroom hours, whether credit is offered for participation, whether the program is offered during or after school, and the amount of the curriculum used.

The higher success rate of the program among older students is not surprising in one sense, since Teen Outreach was created originally for high school students. On the other hand, it may be that the evaluation of the program is not currently measuring enough outcome variables appropriate to younger students.

The importance of the volunteer component is to be expected in light of current theories of empowerment and ecological development (Bronfenbrenner, 1979; Rappaport, 1987). The opportunity of young people to become help givers may indeed be an important experience in their development. Still, this research cannot demonstrate a causal link between these experiences and positive outcomes. It may be that some other factor not yet measured completely (such as a caring facilitator who works hard to provide successful volunteer experiences and who cares, in general, about his or her students) produces this finding.

It is gratifying for any program to discover that it is equally successful with both males and females and with those of different racial/ethnic groups. Similarly, for purposes of program replication, it is encouraging

to find that when the program is offered and whether or not it is attached to course credit, makes little impact on its success.

The lack of relationships between classroom hours and amount of curriculum use and program success pose interesting questions. Certainly it seems reasonable to posit that number of classroom hours should be less important than the quality of those hours. The curriculum used in the Teen Outreach program does include discussions around topics that should support the development of life options to pregnancy and other negative behaviors. The activities in the curriculum and the style in which they are offered to students, however, are intended to facilitate group bonding and trust among Teen Outreach group members and their facilitator. Thought of in that context, then, it seems likely that the sheer amount of such material used may be less important than the way in which it is delivered. Indeed, case reports from facilitators suggest that they use a variety of supplemental materials to keep their discussions timely and responsive to student needs.

### Conclusions

This chapter has presented data on program outcomes in Teen Outreach from six different samples. These data were gathered over 5 different school years. Only one of these samples utilized random assignment to create a control group. Unfortunately, this was the smallest sample of the six. Still, in all of these samples, the results are similar.

Almost all of the differences between the Teen Outreach and comparison students are in the desired direction: Teen Outreach students generally had fewer pregnancies, fewer courses failed, fewer school suspensions, and lower rates of school dropout than comparison students. More important, in each of the samples, the Teen Outreach students had significantly lower rates than did comparison students in half or more of these negative behaviors, even when prior risk and background characteristics were controlled.

These are results that, to our knowledge, are not duplicated by any other program of this kind in the nation. The random assignment results obtained in 1988-1989 add yet additional strength to the conclusion that Teen Outreach is a program that works.

We hasten to add that such a positive conclusion is supported more by the weight of evidence here than by the rigor of the research procedures used in each year. In only one sample were all the Teen

Outreach and comparison students assigned randomly, and this sample is the smallest of the six, leaving too little power to detect statistical significance except in the case of the largest differences, and limiting the capacity for multivariate analysis. At many Teen Outreach sites, participants were self-selected. Also, these data are from self-reports, and future studies will need to validate these with more objective sources of information such as report cards. Still, the weight of evidence here is overwhelmingly positive.

If these effects for Teen Outreach are real (as they appear to be), the evaluation design has not yet revealed for how long they last. While some 1-year follow-up data have been gathered from subsets of the youth enrolled and their comparisons, this question of the length of effects will need further research.

Given these cautions, however, it may still be worth discussing why Teen Outreach appears to be often successful in lessening school problems and postponing pregnancy. Indeed, the program does include elements that are being recommended currently by those who have reviewed what we know about success in these areas (e.g., Dryfoos, 1990; Hayes, 1987; Mueller & Higgins, 1988).

At its heart and when it works best, Teen Outreach includes mentoring from a caring and supportive facilitator, a work experience in the community that offers both the opportunity for skill building and the opportunity to feel needed, and a peer support group atmosphere. In addition, the curriculum concentrates on developing concrete coping skills, as well as the cognitive base necessary to avoid pregnancy. These include skills in assertiveness, in decision making, in use of community resources, and in communication.

The intervention is not a "one-shot" brief program, but rather a year-long effort. In fact, many Teen Outreach students request a second year of participation. While no direct measures of such a dimension have been taken by the current evaluation system, visits to Teen Outreach sites repeatedly confirm the impression that students become proud of their membership in the group and that it comes to function as their "in-crowd" or "clique."

These characteristics of the program, taken together, would seem to account for the general success of the program. Future evaluation of Teen Outreach will focus on increasing the number of sites that can use true random assignment to create a control group, on assembling information on the longer term impacts of the program, and on continuing examination of the conditions under which the program works best.

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## *School-Linked Reproductive Health Services*

### *The Johns Hopkins Program*

LAURIE SCHWAB ZABIN

The Johns Hopkins School of Medicine program for the primary prevention of adolescent pregnancy was planned from the outset to serve two major purposes. It sought to design and implement a program that could reduce the rate of unintended conception in an urban junior and senior high school through education, counseling, and medical services; and it sought to document the success or failure of that activity through rigorous process and summative evaluation. The shape of the program that emerged from these twin objectives, and the research model that explored its effects and its costs, will be described in this chapter. It will also address issues that arise when evaluation is undertaken in the school setting, issues relating to access to data, data collection, data management, and analysis. Finally, it will report briefly on program utilization; it will show how the evaluation model permitted an accounting of each program component, the numbers of students who availed themselves of each type of service, and their estimated costs.

### *The Self Center Program*

#### **Rationale**

The program, designed and implemented in cooperation with the Baltimore City Department of Education, had roots in the service and research histories of its creators. From many years of pediatric experience directing programs for pregnant adolescents and adolescent parents, the principal investigator and the program administrator had learned many relevant lessons. They had learned that, although adolescents respond well to supportive programs, they frequently do not value their educational components enough to seek them out if they are not offered as an integral part of a medical service program. Thus both education and services in reproductive health should be delivered in one location. Nonetheless, they are best delivered by a multidisciplinary staff. To help such a staff function in the best interests of its young clients, a case-management approach is generally effective; it allows each discipline to contribute its skills while permitting flexibility in the roles of the team members as they meet the interrelated problems that are common among this population. Another aspect of the service program that derived from prior experience was its emphasis upon small group work. In an age group in which peers play an important role, more can often be accomplished in groups of three to five than in the individual counseling setting in which the counselor may appear to play a more authoritarian role. Although group work in a classroom setting and individual guidance were both included in the final model, small informal groups that coalesced around issues of mutual interest were frequently the contacts of choice. Because of the developmental status of the school population, interactive modalities of education were preferable to didactic teaching; a consistent and caring staff with whom teenagers could relate over time was an essential component of the program's effort to build and maintain trust (Hardy & Zabin, 1991).

From the work of the principal investigator for the research portion of the program came several findings that had implications for the service model. The risk of pregnancy in the early months of intercourse was found to be so high that reliance upon traditional reproductive health services with limited outreach was not likely to succeed; 50% of all first premarital conceptions in this age group were found to occur in the 6 months following first intercourse (Zabin, Kautner, & Zelnik, 1979). Compounding these risks, mean intervals of 1 year were observed

between first intercourse and first clinic attendance (Zabin & Clark, 1981). Among young adolescents the proportional risk of pregnancy in the early months of sexual exposure is even higher, suggesting that programs must try to reach 11- and 12-year-old boys and girls if they are to serve those at highest risk before their sexual onset. Other findings suggest that only with early, nonclinic-based intervention could first intercourse be postponed and that only outside the clinic could many of the attitudinal barriers to contraceptive use be addressed. No success has been documented, however, in reducing unintended conception except in the context of accessible family planning services. Furthermore, it was clear that sexually active young women were in need of consistent follow-up if they were to maintain a contraceptive regime and prompt pregnancy testing if they were to make responsible decisions about the outcomes of accidental conceptions.

Finally, it was apparent from both experience and from the literature that the cognitive and emotional status of young people when they were physically at risk of pregnancy were often such as to limit their ability to respond to episodic intervention, and certainly limited their ability to overcome the multiple barriers to responsible sexual behavior. Developmental age is a critical factor in the design of any intervention; the age range that the program intended to serve required that the needs of young people at very different stages of psychosocial development be appropriately addressed. The importance of developmental issues in adolescent pregnancy prevention is explored in detail elsewhere (Hardy & Zabin, 1991; Zabin, 1990a, 1990b).

### The Program Design

The schools to which the Hopkins team offered the program were the junior and senior high schools within the hospital's geographic community. The model that derived from the service and research experiences described above placed a team consisting of a social worker and often a nurse practitioner or nurse midwife in each school every morning; it utilized the same team in the afternoon in a clinic across the street from one school and a few blocks from the other. These staff, who became acquainted with the students in at least one classroom presentation a semester, were available for individual consultation or small group work in the school health suite. They offered contraceptive services in the clinic, along with continued counseling and education. In the clinic the waiting room became a center for informal education, utilizing

audiovisual equipment, games, and small group encounters. Additional educational sessions were guided by a health educator, and clinicians were available at specific times to handle medical problems that required their expertise.

The explicit emphasis of the program was, categorically, upon reproductive health, although referrals were available for other medical problems and counseling often led to broader areas of concern. A multidisciplinary staff was clearly indicated because of the multiple problems so often encountered among the young clients; in fact, the confluence of problem behaviors among those who initiate coitus at young ages was confirmed in data collected in the program and control schools (Zabin, Hardy, Smith, & Hirsch, 1986). At no time, however, did the breadth of the counseling obscure the program's focus upon those reproductive and sexual issues. These were concerns that the students could rarely discuss with other adults; by removing the taboos often placed upon these issues, learning and communication were facilitated. Because the purposes of the endeavor were defined and explicit, the objectives measurable, and the service components directly related to the program goals, a commitment on the part of the research team to an exhaustive and many-faceted evaluation appeared justified. They, in turn, were rewarded with a service staff that appreciated the need for evaluation and were willing not only to invest the necessary time and effort in data collection but also to open their professional activities to rigorous scrutiny. In all the writings devoted to the art and science of evaluation, too little is said of the risks and challenges that it poses to the service providers who are willing to subject themselves to it. Their commitment deserves commendation.

A clear commitment was also made to the program on the part of the principals, the superintendent of schools, the school health committee, and the health department. This commitment included an understanding of the demands of a rigorous evaluation, the inclusion of which was a condition for the private grant that funded the program for 3 years. We attribute the level of support the community and the school authorities gave the program to the investment of approximately a year in the development process. It allowed the team to meet with all the official entities with a legitimate concern for school programs in order to obtain their sanction, as well as those without such authority who nonetheless had an interest in the students and in programs available to them. This effort was crucial to the success of the program.

### The Evaluation Model

The evaluation depended upon both a pretest/posttest and an experimental/control model. A junior and a senior high school were chosen by the superintendent of schools as controls; their enthusiasm for the project was especially gratifying because they were not being offered a special program as a bonus for their participation. Measured by the percentage of students eligible for the free lunch program, the control schools had student bodies whose socioeconomic profiles were similar to the experimental schools. Although their populations included white students who were also surveyed, only the black respondents were compared with the all-black student populations of the program schools. On the basis of the data the team subsequently received, the schools appear to have been a good match. Nonetheless, the focus of the evaluation was upon *changes* over time brought about by the program; the control schools were included to determine that the observations were not contaminated by secular change over the program period. Surveys yielded repeated cross-sectional data that, because they were totally anonymous, could not be linked across time periods. Data were collected in the fall of the year the program began, shortly before the school components were inaugurated, and 2 months before the clinic was opened. All four schools participated in the baseline survey and in a similar survey in the spring of the third year. At the close of the first and second year, a survey was given in the program schools so that the effects of brief, as well as longer, term exposure to the program could be assessed.

The evaluation was designed to test the hypotheses that premature conception and childbearing among poor, urban adolescents could be prevented and that the schools were an effective locus in which to reach adolescents for that purpose. One of the principles upon which the proliferation of school-linked programs is predicated is the belief that such programs can reach young people who would not otherwise be served by professional health facilities. If that is the case, such programs ought to be able to demonstrate an impact upon the student body as a whole, not merely upon the self-selected subset who attend its clinic—a subset that might well consist in large measure of those who would have sought similar services wherever they were available. Thus evaluation should not be restricted to those who utilize program services but should include all students who, because they are in a school while a program is in place, have it accessible to them. To expect such

effects puts stringent demands upon a program, but if positive changes are demonstrable in the entire student body, that is strong evidence of success. An assessment based upon such effects makes it possible to measure the degree to which the program succeeded, the degree to which its components were utilized overall, and the degree to which they substituted for other services, and thus to measure the true potential of these relatively new designs.

The evaluation of the Self Center, as the students christened the program, was therefore designed from the onset to assess changes in the knowledge, attitudes, and behaviors among entire school populations, based primarily upon data from self-administered questionnaires completed in the program and control schools. The experimental sample consisted of students from the two program schools. In these schools, 667 males and 1,033 females completed the voluntary, anonymous baseline questionnaire referred to as Round I below; they represented 98% of the junior and senior high students present on the day the survey was administered. Because of lower attendance and lower enrollment when subsequent rounds were administered, smaller numbers completed those surveys, although refusal and noncompletion rates remained only about 3-3%. Round II, administered in the program schools at the end of the first year, included 498 males and 793 females; Round III, at the end of year two, included 450 and 764, respectively; and Round IV, the final survey in program and control schools, 506 and 695 students, respectively. In the baseline survey in the control schools, 944 males and 1,002 females are included, and at the end of the project period, 860 males and 889 females. Over 95% of the students in each of the four schools produced records whose completeness and internal consistency qualified them for inclusion in the analysis. Data from these questionnaires, coded and edited twice by different data handlers, were computerized, verified, and cleaned.

In addition to the outcome evaluation built into the project, a process evaluation, a cost study, and a detailed analysis of utilization patterns were provided for in the design of all record systems. Although other sources of evaluation data were less extensive than the survey data, they were invaluable. Cost data were available from the Johns Hopkins University Financial Office, with backup materials provided by the program administrators and staff. All clinic forms, including social work and medical records, registration forms, sign-in sheets, and even a "nonform form" designed to pick up any clinic visit by youngsters whose attendance on a particular day might not otherwise have been

recorded, were planned cooperatively by the research and service personnel. All service staff were trained in completing the forms; medical forms were designed with all permissible codes indicated so that even an occasional substitute clinician could follow the correct protocols.

The records that contributed most to an understanding of the utilization of staff time were detailed logs maintained by the four key service providers who were in regular contact with the students: the two social workers and two nurse practitioners. The daily logs they maintained were the only forms whose purpose was purely research. They recorded each individual contact with a student in one of many types of service categories. These were then combined by the researchers into the six basic categories of service defined for the study—three types in the schools and three in the clinic. In combination with the financial records, the exhaustive logs made it possible for the research team to estimate the utilization and the costs of each type of service, the proportion of budget required for each location and program component, and the level of cost associated with individual students or cohorts of students who utilized the program in different ways.

#### Methodological Problems in Evaluation

If more rigorous evaluation is to be undertaken in the future than has been accorded most school-linked initiatives in the past, some of the methodological problems in evaluating programs in the school context may be of considerable interest in their own right. Most of the problems we encountered were not unique to the schools in Baltimore; they can be generalized to other cities, other schools, and other models. Even when cities, school systems, and services differ, generic issues appear to complicate the evaluation process. They make the assessment of change particularly difficult as one seeks to measure program effects in a moving target; classes are changing their membership, and youngsters are growing up. Problems may also be related to the politically charged climate in which these evaluations must be undertaken. Details of the team's methodology and discussions of many of these problems can be found elsewhere (Hardy & Zabin, 1991; Zabin & Hirsch, 1987; Zabin, Hirsch, Smith, Street, & Hardy, 1986). Outlined here are the issues that are most challenging and that must be understood in order to interpret the results of the present evaluation.

Mobility into and out of individual schools is frequent in most cities, even schools that serve designated communities. This is largely due to

normal patterns of graduation and promotion, but it can also be affected by factors relating to individual students, such as transfers or changes in residence, and by institutional factors such as reapportionment and group reassignments. This fluidity is especially common in extensive school systems serving urban populations. Motion into and out of the school makes it difficult to identify a denominator against which behavioral change or the utilization of program services can be measured. This difficulty is especially important when program effects upon the entire student body are used as a key measure of success. Mobility also complicates the definition of exposure groups, as explained below.

Another complication when undertaking a controlled study is the difficulty encountered in most urban school systems in identifying two schools that are clearly comparable. Schools tend to have their own character even when they are following the same guidelines; they often differ in curriculum and administration. They may vary in the economic and racial mix of students because of their geographical settings within the city or because of the ways in which localities allocate pupils and programs within their systems. Sometimes even the proportions of males and females are different. Furthermore, special programs may be offered in some schools but not in others. Even when no confounding programs exist, evaluators in some settings have found that students in one school may have convenient access to services within the community not accessible to those in other schools. Not only does this situation make it difficult to find control schools, it may also limit the ways in which they can be used even after they are chosen. It is safer, therefore, to use controls to establish the presence or absence of secular change, rather than to compare absolute numbers and/or rates at two sites at two points in time. If the possibility of secular change makes it inadvisable to utilize only a pre/post study in a program school without controls, differences between schools make it inadvisable to use comparisons of experimental and control schools at a single point in time as the basis for a program evaluation.

Deriving from these general issues are some of the particular challenges that were addressed in the current study.

1. Even within a single school, attendance can vary between the fall when the baseline data were collected and the spring, when follow-up generally takes place in order to capture those who will graduate and move on. It cannot be assumed that all differences in seasonal attendance are random. For example, although a drop-off in attendance due to transfers or change

of residence may be random, a drop-off due to absenteeism and premature school termination will generally select less motivated students. School systems operating as they do, it is not likely that a new program slated to begin in the fall would be developed long enough in advance of its inauguration to permit the administration of a baseline questionnaire the previous spring; even if that were possible, some students would inevitably be missed. Therefore minor differences in age distribution of school populations will frequently exist between baseline and follow-up data. Unless one controls for exact age by month, these differences can affect results, especially in variables that involve the cumulative initiation of strongly age-related behaviors. Of course, any such differences in the program schools would also appear in the control schools and therefore would not affect comparisons between them. Furthermore, when cumulative measures are used in variables in which exact age is critical, life tables correct for these differences.

2. Because of the students' movement into and out of the schools, and because of the large numbers of students who repeat grades, program exposure cannot be predicted accurately by grade. It is tempting to compare survey rounds in sequential years; that is, no doubt, the simplest way in which to analyze the several waves of cross-sectional data but is not a reliable basis upon which to evaluate program effects. Differentials by individual confound the picture and make it necessary to control for presence in the school while the program is in place in order to get an accurate measure of each individual's actual program exposure.
3. When years of exposure to the program are used to define subgroups for comparison, however, age distributions within subgroups may vary; for example, longer exposure is generally associated with older ages. In the spring, the students who entered a junior or a senior high school in the fall of that school year can only appear in one year exposure groups; students in higher grades may also have been in the school for only one year but are more likely to have been in the school for longer than a year, hence to have had two or three years of program exposure. Again, life table methods correct for age differences; they can also be used to correct for exposure differences and for intervals following first intercourse, as they were in the current study.

In the tables and figures in this evaluation, the basic comparison groups are defined by exposure. Results, however, are reported by grade to minimize age differences, and sometimes even by school or school of origin. Some grades and exposures have cells with small "N"s and some cells that are inapplicable. (For example, no seventh graders were exposed longer than 1 year, nor eighth graders longer than 2.) When

totals are summed across grades, they are controlled for the grade distribution at baseline and/or the grades available at follow-up. Doing the analysis by grade and then summing across grades has an additional advantage: it breaks down the unit of analysis from two—that is, two program schools—to many more. The researchers examine changes over two different time periods—1 year and 2 or more years—in three different groups of the junior high and five for the senior high<sup>1</sup>, and then uses a Mantel-Haentzel summed chi-square test to calculate significance across all groups; this gives the researchers greater confidence in the differences they report than if they had used the school as the unit of measurement.

All baseline information is reported as "zero exposure." Round II data, collected in the spring of the first year, represents 1 year of exposure; also exposed for 1 year are a subset of the students interviewed in Round II who entered the program schools in the second year of the program. Two years of exposure were experienced by the remaining students in Round III, and by students who entered a program school in the second year and were interviewed in Round IV. The 3-year exposure group includes Round IV respondents who were in the program school(s) throughout the program's 3 years of operation. Further details relevant to the definition of comparison groups and the methodology used in addressing these problems are described elsewhere (see Zabin & Hirsch, 1987, and the appendix to Zabin, Hirsch, et al., 1986).

#### Administering the Survey

Before the surveys were administered, parents were informed in parents' meetings of the projected program and the survey. A few days before the survey was to be administered, notices were sent home with all students in the program schools, telling parents that the school was planning to inaugurate the program and explaining its primary objective—the prevention of pregnancy among the students. The use of a very personal, anonymous survey to help plan for that program was detailed. Parents were told that they could call a given number between 8 a.m. and 6 p.m. during the following several days if they wished to ask that their child be excused or if they had further questions. Although the principal and the Johns Hopkins research team were anxious for all students' participation, the parent was assured of the voluntary nature of the survey. Few mothers used the opportunity to call, and those who did call with questions did not ask that their offspring be excused. Often

their calls were to express gratitude that something was to be done to help address what they perceived as a serious problem confronting them and their children. (At the control schools, a similar procedure was followed, although the notice to the parents could not promise them a program. Nonetheless, they appeared willing to cooperate.) This means of eliciting parental consent is highly preferable to the demand for positive written permission, a condition that has seriously limited the ability of some evaluations to tap a large enough percentage of the student population. Without a thorough understanding of the procedure on the part of the school administration and without their wholehearted commitment to the process, it is difficult to obtain authorization for the procedures we used—another good reason to invest time and energy in the development of school and community support.

Equally supportive were the students; only an occasional individual declined to take part although the homeroom teachers, briefed in advance, read them a statement that offered them another chance to withdraw. Although homeroom teachers handed out the questionnaires, each member of the research team was assigned four or five classrooms through which to circulate throughout the period. Thus they could respond to questions that the students might not have wished to address to their homeroom teachers. The administration process, originally conceived for research purposes and to aid in the design of appropriate interventions, had another beneficial effect not contemplated in advance: it made the entire student body aware of the forthcoming program and suggested, through the explicit nature of the questions, that discussions of hitherto taboo subjects would be appropriate when the staff became available to them. The researchers suspect that the experience of responding to the questionnaire accelerated utilization of the program in the months ahead.

### *Evaluation Results*

#### *Sexual Activity at Baseline*

High levels of sexual activity were reported in the program and the nonprogram schools at baseline (Zabin, Hardy, Streett, & King, 1984). Almost 92% of the boys in the junior high school ninth grade reported having had sexual intercourse, as did boys in the senior high; 54% of the junior high ninth-grade girls, and 79% of the senior high school girls

reported coital experience, as well. In the seventh and eighth grades, over 47% of the females had already experienced intercourse. Large proportions reported that they had used a family planning method at some time: approximately 71% of the junior high males and females, and over 89% of the senior high students. Far fewer, however, had used any method at last coitus, a better measure of consistency of use; only 61% of the junior high females and 73% of those in the senior high had used a method of any kind at last coitus. Of the sexually active girls in the seventh and eighth grades, 11% had already experienced a pregnancy, and in the senior high, over 22%. Even these figures were not unusual in similar populations; pregnancy rates in the junior high school at the program and control schools were very similar, and in the control senior high the baseline rates were even higher. On most of the characteristics measured, there was no reason to believe that the students were not broadly representative of young people in an urban school system serving a preponderance of poor black children.

#### *Knowledge and Attitudes*

Ten questions were asked of 9th- to 12th-grade students to assess knowledge of the correct use of specific contraceptive methods, and of the risk of pregnancy. Among females, scores on these questions at baseline averaged 6.8, increasing with age from 5.4 among 9th-graders to 7.4 among 12th-graders. A significant increase in knowledge occurred over the program period. Scores increased from 6.8 at baseline to 7.8 after 2 years or more and, for females in the 11th and 12th grades, to 8.2. Significant increase was also observed among males in the program schools at each duration of program exposure. On the other hand, in the control schools, although students started at levels comparable to the program schools at baseline, knowledge scores never exceeded 7.2, and no changes among females or males in the control school achieved significance.

A measure of knowledge frequently assessed in the literature concerns the fertile time of the month. It is generally reported that few young people give correct responses to questions tapping this information, even among young men and women who report that they have had a sex education course. We find that most good sex education courses teach young people that they are at risk at any time; with the often irregular cycles associated with adolescence, that is probably the best protective assumption to make. In view of that lesson, however, the

researchers prefer to consider responses correct if students reply that a woman's fertile period is "2 weeks after her period begins" or "anytime during the month," rather than coding the latter response incorrect. When coded in this manner, a highly significant increase is found in knowledge among females in the program schools, especially among younger girls. Unfortunately, even with the increases in knowledge brought about by the program, young women rarely exceed a 50% score on this variable. Increases among males in the program schools are small and neither consistent nor significant. A decrease occurs among control school males, however, and among females only an insignificant increase during the same time period. One can begin to see an important pattern of change: younger students come to achieve scores after program exposure that are higher than those achieved by older students prior to the intervention. This is encouraging because an earlier acquisition of knowledge has the potential to reduce the high risks associated with early sexual behavior.

After exposure to the program, fewer male and female students rate withdrawal, rhythm, or douche as "good" or "very good" protection against pregnancy. This trend is already significant among males and females after 1 year's exposure; knowledge continues to improve with longer exposure. The response pattern does not change among nonprogram students. Thus overall, an increase in contraceptive and sexual knowledge appears to occur, a difference that is generally significant in magnitude.

Attitudinal change is small by any of the three attitudinal measures reported here: (a) the proportions of students who hold any positive attitudes toward teenage pregnancy; (b) the percentage who cite a "best" or ideal age for childbearing that is below the age they cite as best for marriage; (c) the percentage who believe that first sex is "okay" when the couple have "just met" or "date occasionally." In a previous study, the researchers had reported a significant relationship between a positive attitude toward adolescent childbearing and the ineffective use of contraception (Zabin, 1985). In the student population, as in the earlier study, few teenagers thought having a child while of school age was a good idea. Although the trend is downward in this measure among females exposed to the program, neither in this nor other attitudinal measures is there marked or consistent change. Large numbers of males and females cite an ideal age for childbearing (or fathering) younger than the ideal age for marriage; in many grades, over 50% share this view. Significantly fewer females hold this view after program exposure

than before; among males the downward trend is weaker. In the control schools, however, no such trend was found; in fact, among females an increase is observed. Changes in the third measure, which explores when having sex is "okay," are also inconsistent and insignificant.

The generally insignificant changes in attitudinal variables may reflect the fact that the majority of students held rather positive attitudes toward contraception and rather negative attitudes toward adolescent childbearing even before the program. There was not as much room for significant change as there was in their knowledge and their behavior. Therefore, although the trends appear to be in a direction discouraging to childbearing, improvement in attitude was less consistent and significant than in knowledge scores. The team has since demonstrated that attitudes play a more significant role when they are defined by several variables that tap a single dimension than when defined by a single question (Zabin, Astone, & Emerson, 1990). Using such a construct, consistent attitudes are shown to be associated with behavior, whereas ambivalent attitudes are not. Perhaps with attitudes better defined, change could yet be demonstrated. If students with previously ambivalent attitudes became less ambivalent, that could help explain changes observed in their behavior. That possibility has yet to be explored.

#### Sexual and Contraceptive Behaviors

The program was designed, and was explicitly committed, to bring about changes in pregnancy rates, including both rates of childbearing and abortion. Clearly, a series of intervening behaviors directly affects those rates, behaviors that a program may or may not be able to alter. These include (a) timing of coital onset, (b) utilization of professional contraceptive facilities, (c) effective use of contraception, and (d) the frequency of coitus among those who are already sexually active. At the outset of the program the team had expected to influence the first three; they had not foreseen the likelihood of change in the fourth parameter, although it was clearly desirable.

The extremely high rates of youthful sexual activity in the study populations made it seem unlikely that a 28- to 30-month program could have much impact upon patterns of sexual initiation. The subset of the population not sexually active when first exposed to the program was relatively small. Figure 7.1 displays the cumulative percentage of  $\geq 15$ -year-old female students sexually active at each age, comparing the histories of those exposed to the program for 3 years with those of

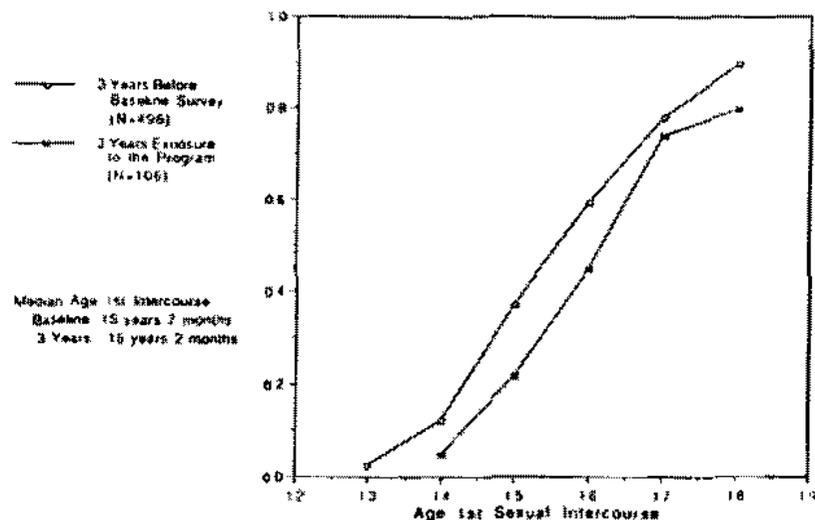


Figure 7.1. Proportion of Senior High School Girls Sexually Active by Age  $x$ , in Baseline Data and After 3 Years of Exposure to a Pregnancy Prevention Program.

students responding to the baseline survey in the program senior high school. These life table curves indicate a median postponement of sexual initiation from the age of 15 years and 7 months before the program to 16 years and 2 months after exposure to the entire program, a postponement of approximately 7 months.

Delays were smaller among those exposed for only 1 or 2 years, reflecting the period of time that is required before one can observe the behavioral effects of any intervention. Both the before and after curves in Figure 7.1 show a rapid increase in sexual initiation between the ages of 13 and 16; although the curves are similar, they show a substantial difference in sexual activity at 14 and 15 years of age. Before the program began, approximately two thirds more females were sexually active by age 14 than after 3 years of program exposure. In view of the high risks attendant upon early sexual exposure (Zabin et al., 1979), even a small delay in this age period may have a substantive impact. The relatively small virgin subgroup and the time required to change behavior suggest that, unless intervention occurs early in a population with young ages of sexual initiation, and unless it is in place for a

considerable period of time, effects will be limited. Nonetheless, these results suggest that postponement can occur as a result of an explicit program such as this. That is extremely encouraging.

Contraceptive clinic attendance changed dramatically from before to after program exposure, so that by its end, over 70% of the sexually active young women who had been exposed to the program 2 years or more had attended a professional facility for birth control. The proportion of sexually active students who attended clinics (either the program clinic or any other professional individual or facility for contraceptive services) increased significantly at each grade level among both males and females. No consistent pattern of change was evident in the control schools. The junior high school boys attended the clinic in percentages as great or greater than junior high girls, at levels that parallel those reported in the baseline data by *senior* high school females; the program made service to males as important as service to females, and among the junior high school boys that emphasis resulted in their active participation. This evidence suggests that young males can be reached when clinic and outreach staff are willing and able to communicate with them. Positive changes in clinic utilization among the younger girls in the schools were also encouraging.

The timing of first clinic attendance relative to first coitus is shown in Figure 7.2. The curves compare the *timing* of clinic attendance among females exposed to the program for 1 year, to the probability of a similar subset using professional birth control services during a similar interval in the preprogram period. It utilizes only those whose first intercourse occurred within those 12-month periods in order to explore the timing of the clinic visit relative to sexual onset. The percentage of young women who attended such a facility as virgins, in preparation for first coitus, is indicated at the intercept. After program exposure, larger percentages appear to have attended a clinic at every month following first coitus. This is particularly important during the period between first sexual exposure and 3 months thereafter, when the "after" curve shows a steep rise. In view of the high risk of unintended conception during early exposure, that increase should translate into a measurable change in pregnancy rates. Longer exposure to the program had stronger effects: among those exposed for 3 years, 92% of female students age 15 and older had attended some professional services by the end of the observation period. The positive effects of a single year of exposure shown in Figure 7.2 were thus compounded by continued access to the program.

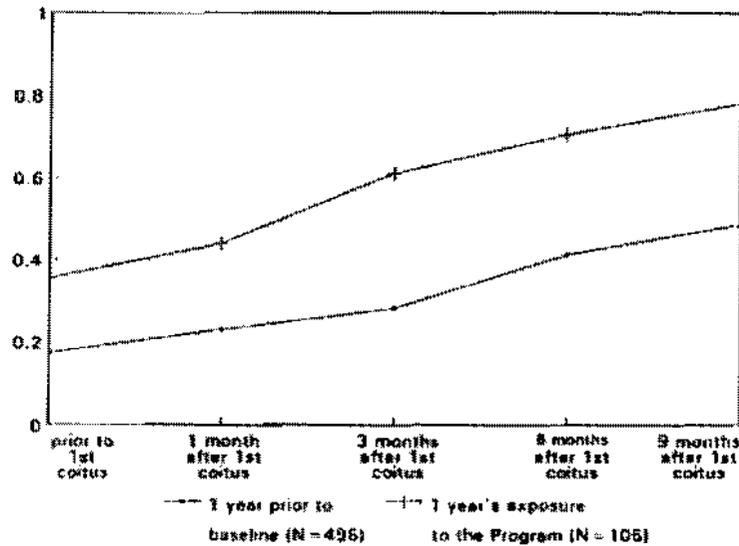


Figure 7.2. Proportion of Sexually Active Female Students in Grades 9-12\* Who Attended a Birth Control Clinic, by Month Following First Coitus, 1 Year Before the Survey.

\* Excludes students who initiated sexual activity more than 1 year before the survey.

The third behavioral area the program sought to influence was the use of reliable contraception. That it succeeded is illustrated by the fact that, at follow-up, in nearly all program school subgroups, fewer than 20% of the sexually active female students exposed to the program for 2 or more years were unprotected by some contraceptive method at their most recent coitus. At baseline was the expected increase in use of the contraceptive pill with age from 25% of sexually active 8th-grade girls to 49% among sexually active 12th-grade girls. After exposure to the program, all grade levels showed significantly increased usage, but increases were much greater among the youngest than among the oldest students. Therefore the large age differentials at baseline (25%-49%) tended to diminish to 39%-61%. Some of the youngest grades reported higher levels of effective contraceptive use by the end of the program than some older grades reported before it began. As mentioned above, this pattern of change, which disproportionately affected younger girls, reduced the excess risks of pregnancy typical among this age group.

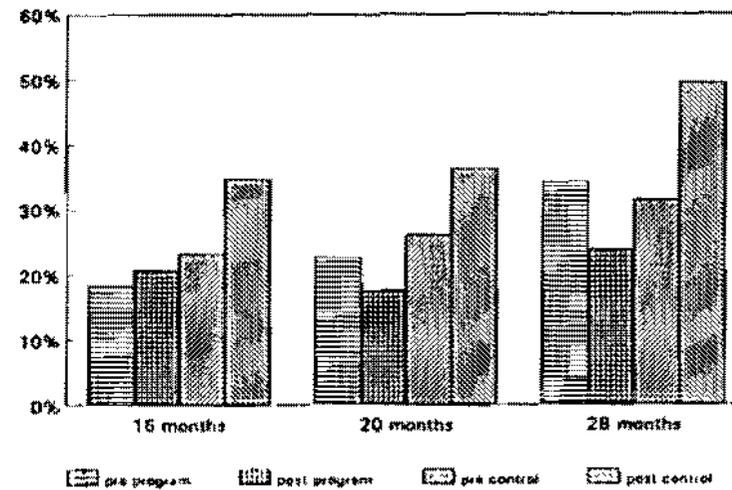


Figure 7.3. Life Table Calculations of Pregnancies Among Sexually Active 9-12th-Grade Females Who Became Pregnant During 16, 20, or 28 Months Prior to Baseline Versus Prior to Follow-Up Surveys.

The improvement is visible even among girls at the 7th and 8th grade levels, at ages at which poor contraceptive usage is generally the rule.

In contrast to the findings among these youthful program school females is the experience of the control schools where younger students continued to demonstrate the limited levels of contraceptive use typical of females who initiate coitus in their early teens. But nonuse was common at older ages, as well. Between 44% and 49% of all the sexually active females in the control schools at follow-up had not used any method of birth control at last coitus; only one grade had attained the levels of protection found in virtually all grades in the program schools.

#### Pregnancy Rates

The crucial measure of program impact, however, is its effect upon conception. Figure 7.3 illustrates changes in pregnancy rates in the program and nonprogram schools after different intervals of program exposure. It reports the cumulative percentage of sexually active students in grades 9 through 12 who became pregnant during the 16-, 20-,

or 28-month periods prior to the applicable survey. Pregnancy rates among girls available for given periods of sexual exposure during the program are compared with pregnancy rates in matched groups of girls available for similar periods of exposure before the baseline interview. (Details of the increment-decrement life table methodology used to obtain these estimates is reported elsewhere [Zabin et al., 1986; Zabin & Hirsch 1987]).

The estimates in Figure 7.3 include young women who transferred to a special school for pregnant girls, if they were in the program or control schools during a relevant interval. They were attributed to their respective cohorts even if they had transferred before the appropriate follow-up survey took place. Including these young women is much more critical to the estimates than including the individuals who leave schools for other reasons; the girls in the special school are not a random selection because they are all pregnant and therefore have a significant impact upon the findings. In this study they represent about 10% to 20% of the pregnant students reported in each school year, and an even higher proportion of those who carry to term; their inclusion in the estimates is vital to the accuracy of the pregnancy rates. Although the researchers did not have the detailed information that a survey would have allowed—information about their knowledge, attitudes, and behaviors—that did not disqualify them from inclusion in the pregnancy estimates.

Figure 7.3 shows a secular increase in pregnancy rates in the control schools, reflecting an increase that was occurring in Baltimore during the program period. A 50% increase during the 16-month exposure period increased by 28 months to an almost 58% increase. (The baseline estimates for the three groups differ because each covers different subsets of the population, a subset with the same exposure prior to baseline as that against which they are compared. This procedure, essential to the comparison, is described in Zabin & Hirsch, 1987, and in the appendix to Zabin et al., 1986.) In contrast to the citywide increase, during the first 16-month exposure period in the program schools, the rate of increase slowed. By 20 months' exposure, a reversal occurs in the trend, a decline of 22.5% in the pregnancy rate; a larger decline, of 30.1%, is experienced among those exposed for the full 28 months the program was in place. Thus the program and control high schools end the program with a very large differential even though they began with pregnancy rates that were similar. Not only in relative but in absolute terms, the program's effects were substantial.

The changes reported here appear robust, as is evidenced by the fact that they emerge when the analyses are performed for different periods of exposure and for different subgroups. Not unexpectedly, abortion rates decreased first. It takes less time to observe changes in abortion rates than in childbearing rates and, because they are all "unwanted" conceptions, they should, theoretically, be even more "preventable." In time, however, the observed reduction in the pregnancy rate reflected the combined effects of reductions in both abortion and childbearing; given time to measure those effects, childbearing rates also declined and contributed to the overall decline in pregnancy.

The data in Figure 7.3 are limited to 9th- through 12th-grade students because information was not collected on the exact timing of pregnancies among the 7th- and 8th-graders. Furthermore, because fewer of these younger girls become pregnant, statistically valid comparisons are difficult to carry out. Can one make any estimate, then, of the impact of the program upon pregnancy rates in the younger group? Increases in pregnancy rates appear to have been even more rapid in the control junior high school during the program period than among senior high school girls. Declines in the pregnancy rates in program schools appear to have been smaller among the younger students than among the older; nonetheless, differentials between program and control schools at follow-up were striking. Thus the program appeared to help the youngest girls largely by helping them avoid the secular increases that were affecting their peers in settings without comparable interventions.

If the data give clear evidence that the program had substantial effects upon pregnancy rates among the sexually active, it remains of interest to explore how the effects were brought about. They can be attributed to demonstrably improved rates of contraception and to improved methods of contraception. In addition to the improvements in contraceptive protection, more recent analysis suggests that the program was associated with reductions in the frequency of coitus, an unexpected but gratifying circumstance. Mathematical models used to decompose changes in the pregnancy rate suggest that the reductions were due as much, if not more, to reductions in coital frequency as they were to improved contraception (Zabin, Becker, & Hirsch, 1989). The use of these models also suggests that the changes in pregnancy rates reported by these young women are credible in terms of their reported behavioral changes. Sensitive and personal areas are being dealt with here. Like other areas that are generally taboo, they are plagued by semantic problems; idioms may differ and, because anonymity is so important to honest response,

very little verification is possible. Therefore the correspondence observed between behavioral change and changes in conception is particularly encouraging. It lends considerable strength to the data utilized in this evaluation; indeed, it suggests that evaluations can be based upon retrospective survey data provided by teenage respondents. If asked questions that are appropriate and straightforward, and if granted—and believe they are granted—complete anonymity, the students take the process seriously; the vast majority are willing and able to provide credible and useful information.

#### *Program Utilization and the Costs of Intervention*

An exhaustive analysis of the components of the program, the time allocated to them, and the students' use of them, was based primarily upon the staff logs but depended upon the availability of complete rolls from the school system. The rolls were used to compute the denominator against which the proportions who availed themselves of each component were measured. Because rolls change constantly, a decision was made to use the November rolls; they are prepared after major changes are made in fall enrollment and before the Christmas holidays, after which most dropouts occur. Thus they are probably maximal. Many students never show up at the schools to which they are assigned; faculty reported that they had never seen many of the students attributed to their homerooms. Therefore estimates of chronic absenteeism per grade for males and females were obtained from the school system so that percentages utilizing each component could be computed not only as proportions of students *theoretically* enrolled but also as proportions of students who could *realistically* be reached.

The six categories of service into which all modalities of student encounters were collapsed for analytic purposes included three in the schools and three in the clinic; they are classroom contacts, small group contacts in the schools, individual contacts in the schools, educational group contacts in the clinic, individual contacts with the social worker in the clinic, and individual contacts with medical staff. On the basis of the rolls, the logs, and other data, it was estimated that 83% of the students were in contact with at least one component of the program, 100% of those who were not chronic absentees (Table 7.1) (Zabin et al., 1988a). This was not unexpected because all classrooms were reached

**Table 7.1** Percentage of Students Using Program Services (and Percentage After Adjustment For Chronic Absentees), by Site and Type of Service, According to Gender and School Level

Site and Type of Service	All Students (N = 3,944)	Female		Male	
		Jr. High (N = 1,001)	Sr. High (N = 1,163)	Jr. High (N = 1,132)	Sr. High (N = 581)
Total	84.9 (112.2)	87.1 (119.0)	87.0 (97.8)	82.2 (132.6)	80.7 (90.7)
School					
Class presentation	72.7 (96.1)	81.2 (111.2)	73.0 (83.9)	73.9 (119.1)	61.3 (68.9)
Group discussion	50.6 (66.9)	55.2 (75.6)	55.6 (63.8)	42.0 (67.7)	48.2 (54.2)
Indiv. counseling	15.2 (20.1)	15.3 (20.9)	29.8 (34.3)	4.3 (7.0)	8.8 (9.9)
Clinic					
Group education	26.7 (35.3)	24.2 (33.1)	42.1 (48.4)	21.0 (33.9)	12.4 (13.9)
Indiv. counseling	19.7 (26.0)	14.5 (19.8)	34.3 (39.4)	15.6 (25.2)	9.8 (11.0)
Medical visit	14.5 (19.2)	13.4 (18.3)	34.8 (40.0)	1.8 (2.8)	2.2 (2.5)

NOTE: Chronic absentee rates as reported by the schools were: junior high females, 27%; senior high females, 13%; junior high males, 38%; and senior high males, 11%.

SOURCE: Zabin, L. S., et al. (1988). The Baltimore pregnancy program for urban adolescents: How did it work? *Family Planning Perspectives*, 20, (4), p. 185.

each semester. As Table 7.1 indicates, if the school system's estimates of absenteeism are correct, even some chronic absentees in the junior high were reached by at least one of these sessions.

The importance of the small group work, especially in the schools, is clear in Table 7.1. Although females were more often involved than males, and junior high students more than senior high, these differences are small compared to the differences between the numbers who availed themselves of these services and those who utilized the other elective components of the program. It seems clear that many students who never attended the clinic had multiple contacts through these sessions; this was one of the key objectives of the school components that were designed both to act as a bridge to the clinic and to serve the needs of students who either did not need or had access to other clinical services. In reviewing the utilization of clinic services, it should be recalled that Table 7.1 includes young people who are not sexually active. Although many of them attended educational sessions in the clinic, many restricted their contacts to the school setting where they received both the group and the individual guidance they sought. On the other hand, the majority of clinic contacts were made by senior high school females, 46% of whose contacts with the program occurred in the clinic setting.

Overall, 33,388 contacts were recorded between students and staff in the 28-month program, when all six types of encounters are included. The mean exposure per student to the program was about 16 months, but because that included summers and other vacations, that left only an average of 250 school days in which each student had access to the school services; for many, access to the clinic was not as convenient during vacations as it was during the school year. During that period of access, a mean of 10 and a median of 4 contacts took place between all students who used the program and the program staff. The median is considerably lower than the mean because of the repeated involvement of some students with the staff; in addition to members of a Peer Resource team whose contacts were numerous, some particularly needy individuals consumed vast amounts of counseling time. In general, senior high males had the fewest contacts, senior high females the most. The frequency with which junior high males availed themselves of the services was gratifying; they enrolled in the clinic in even greater proportions than junior high females, proving that, with appropriate outreach at the appropriate ages, young men can be served in such a program.

Did the school act as a bridge to the clinic? It would appear so because 86% of the students who came to the afternoon facility had a school contact before they first visited the clinic (Hardy & Zabin, 1991). Of the remainder, about half had a school contact between that first clinic visit and enrollment. Thus the notion that school components could facilitate clinic utilization was apparently correct. But the school base did a great deal more. For almost 70% of the students who had any contact with the program—that is, if the school estimates are at all reliable, 70% of all students who could not be described as chronic absentees—the school components were the only services used. In view of these data, the overall impact of the program upon the student body suggests that nonclinic services rendered in a school setting can have a powerful influence upon knowledge and behavior when those services are delivered in the context of an explicit reproductive health service program.

Programs such as this one, however, are not without financial costs. Costs were computed by dividing the salaries of the four key staff (two social workers and two nurse practitioners) by the time devoted to each of the same six categories of service shown above. Added to their salaries were assigned shares of all other costs, including administrative costs, and other relevant components. For example, all medical staff and materials were included with the nurses' salaries before allocating

**Table 7.2** Number of Students Served, Total Expenditures and Costs Per Student, by Gender and School Level

Gender and School Level	N	Total	Costs per Student		
			Average	Maximum†	Minimum
All students	3,349*	\$409,140	\$122	\$3,052	\$3
Junior high	1,834	143,106	78	1,680	3
Senior high	1,508	266,001	176	3,052	3
Male	1,400‡	68,438	49	891	3
Junior high	930	47,460	51	815	3
Senior high	469	20,970	45	891	3
Female	1,881	340,281	180	3,052	3
Junior high	872	95,397	109	1,680	3
Senior high	1,012	244,868	242	3,052	3

NOTE: \*Includes students with gender and/or school level unknown.

†Maximum costs exclude peer resource students.

‡Includes students with school level unknown.

SOURCE: Zabin, I. S., et al., (1988). The Baltimore pregnancy prevention program for urban adolescents: How did it work? *Family Planning Perspectives*, 20, (4), p. 190

those salaries by time segments, and all educational costs were added to the social work components. Thus the per session costs are inclusive of all program costs and are not merely the costs of the staff time of the provider who rendered the service. (Details of the methodology are described in Zabin et al., 1988b.)

The applicability of the costs computed to other models is complicated by the program's association with a major university medical school, which no doubt had both financial advantages and disadvantages. Personnel costs were probably higher because of this association, and start-up costs lower. The economic use of staff during vacation periods was an advantage, but because the program was heavily staffed, similar services could, theoretically, be offered at lower costs. For example, one could spread the nursing staff between two schools and minimize the large amounts of time devoted to the peer resource group. The figures presented here are maximal, but they permit one to understand the relative costs of various program components and the maximum costs of equivalent services (see Zabin et al., 1988b, for details).

School-based services accounted for 40% of the budget, clinic services for 60%. With a 3-year budget of \$409,250 overall, the average cost per student, combining those with all levels of service utilization, was \$122 (Table 7.2). Costs per female were almost four times those

per male; costs for senior high school students were more than double the costs for students in the junior high. Utilization of the program at many different levels meant that services per individual ranged from a low of \$3 for those who experienced only a small group discussion with a social worker in the school setting, to a high of \$3,052 for a senior high school female whose needs for individual counseling led to 228 contacts with the program staff.

Because small group sessions in the schools attracted so many students, it is especially encouraging that this activity was extremely cost effective. So many young people utilized the time the social workers made available for this type of consultation that the costs for each student contact were below the per student costs of the classroom presentations even though each of the latter involved many more students. In contrast to the full class period, the spontaneous, small group sessions often lasted only 15 minutes and required no special arrangements or preparation; they were not only an effective educational component but a cost-effective way in which to utilize staff time.

Perhaps the utilization of a wide range of services by those who sought medical consultation in the clinic can be seen as a validation of the original model. Because the majority of enrollees had contact with the staff both in school and clinic and took part in both group and individual counseling, the cost for each student who obtained contraceptive services was approximately \$402 when estimated for the entire program period; 1-year costs averaged \$188.

The use of high school students as outreach workers and even as counselors for their peers has been promoted not only in the U.S. but in developing countries. The Peer Resource Team in this program was utilized for limited purposes, but especially to give the students a sense of ownership of the program; they publicized it and represented it although their assigned tasks often were limited to management of audiovisual equipment and similar noncounseling activities. The costs attributed to this group, however, were large. The advantages to the team members themselves of their personal involvement with the program staff may have been great, but the costs were high. When their costs are included in the overall estimates, the multiple-year cost per contraceptive patient increases from \$402 to \$432 because the personal and training contacts of the peer resource students cost over \$2,000 each. Thus whatever advantages they may offer, such a team should not be included in an effort to reduce staff costs; the component cost more staff time and attention than it saved.

Individual counseling is expensive. In the clinic, considerable time was devoted to each session, and some individual counseling was required for all who sought contraception. The mean cost per clinic counseling session was approximately \$42, school sessions \$28. The lower per visit cost for medical consultation than individual counseling in the clinic, despite the higher pay received by medical personnel and the inclusion of medical supplies, physicians, and medical support staff costs in the estimate, is dramatic evidence of the time these often extensive sessions required. The high cost of counseling necessarily raises the question: Is unlimited consultation with a social worker a necessary component of such a program? All programs may not be able to invest so much in this component, but because it was seen as one of the program's most important contributions, there is no guarantee that without it the same effects could be ensured.

#### *Summary and Conclusion*

At the time the evaluation described here was first published, in 1986, there was an uncomfortable sense that the problem of adolescent unintended conception was intransigent. Although creative programs had been essayed in many communities, no strong evidence existed that pregnancy rates could be reduced or that any particular intervention deserved to be replicated. It was not surprising that the findings reported here received nationwide attention. It was of special interest that they demonstrated that abortion and pregnancy rates could be reduced and sexual onset postponed by one and the same program. Many who opposed both sex education and contraceptive services for adolescents believed that the provision of contraceptive services, or even open discussion of the responsibilities associated with sexual intercourse, would increase sexual activity. On the basis of the data presented here, that hypothesis must be rejected. Not only was sexual onset postponed among those not yet sexually active, but the frequency of coitus was reduced among those who had initiated intercourse, even while those who continued their sexual activity were protected by more effective contraceptive use.

Because program acceptance and utilization was high, it was possible to affect the intermediate behaviors that can, in turn, account for a reduction in pregnancy rates. Timely clinic attendance was increased dramatically, use of effective contraception was improved, and unprotected coitus

was reduced to extraordinarily low levels. The effects were especially dramatic among the younger girls and boys whose preprogram levels of protection were minimal. They exceeded the magnitude of change that was predicted when it was hypothesized that the program could have a measurable impact upon pregnancy rates. Many more young people learned to make responsible sexual decisions for their futures. Furthermore, the savings that accrued to the community as a result of these reduced pregnancy rates were substantial. Both in human and financial costs averted, the project was a major success. Little doubt exists that such services, or services approximating them, could be delivered at lower cost. The effectiveness of the small group sessions and the low costs related to them suggest their importance in future models. They permit a small staff to reach large numbers of students, and their popularity recommends them in both school and clinic settings. The school components were relatively inexpensive and, with the presence of the staff in the schools, the nearby, free-standing clinic proved highly accessible to students and acceptable to the school community. The clinic could operate without the strictures so often imposed upon an on-campus facility. It combined proximity with the best counseling and medical care a major health and academic institution could provide. In view of the political difficulties in delivering appropriate services within the schools, and the limitations often associated with vacation schedules and early afternoon closings, the location of the clinic just outside the school would appear justified. The way in which the students used the school components, however, often as a bridge into the clinic, suggests that a visible relationship between clinic and school can be crucial; it was represented in this model by the presence of the same staff in both locations.

What can be concluded about the evaluation model? The use of the entire school population as the denominator for assessing utilization, and the designation of all students responding to the questionnaire as the denominator for measuring change, challenged the program in the extreme. It met that challenge. The findings permit the conclusion that the program had an effect even upon those who did not utilize all it offered and that its relationship with the school had a beneficial effect upon many who never entered the clinic. As valuable as self-administered questionnaires are in assessing change, individual data on program utilization has an important role, as well. Without recording each encounter, analyzing each staff members' functions, and tracking each student through the program, the team could have reported only *that* it

worked, not *how* it worked. It would not have been possible to measure the importance of the school effort or to establish the relatively low cost at which it operated.

The inclusion of data from the school for pregnant girls was crucial in evaluating the fertility effects of the program. It is a procedure recommended wherever such facilities exist. Having noted their importance in the team's estimates, it would seem wise in future evaluations to attempt to determine who has transferred into such schools and, if they are found in a school setting, to administer the same survey that is conducted in program and control schools. Even in the absence of survey data, however, their incorporation in the enumeration of pregnancies is indicated.

The program proved that young men and women will respond to an appropriately staffed, well-conceived program, one that provides them with supportive services, education, a sense of their self-worth, and the means to act responsibly. Not only did the model give students in two schools that opportunity, but by including a strong evaluation component, it was able to demonstrate that it worked. Both the service and the evaluation models are deserving of replication in other similar urban environments.

#### Note

1. Five rather than four groups are compared in the senior high because one 10th-grade subgroup consists of students who came from the program junior high, and another subgroup consists of those who did not. They are analyzed separately because their exposures differ (see Zabin & Hirsch, 1987).

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## *Comparing Adolescent Pregnancy Prevention Programs*

### *Methods and Results*

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As noted in the preface of this book, the main goal of any prevention effort is to reduce the incidence of a problem behavior or event. Adolescent pregnancy, which is usually unintended and nonmarital, is a problematic event about which there is widespread agreement—such pregnancies would be better avoided or postponed. More consensus occurs around the goal of preventing adolescent pregnancy than about how to achieve this goal.

#### *On Program Models*

An early (and' apparently naive) belief was that providing more adequate sex education would result in adolescents being less likely to become pregnant. An apt cliché might be, JUST SAY KNOW. In general, though, studies have found sex education to have little or no relationship to adolescent sexual behavior, contraceptive use, or pregnancy (Stout & Rivara, 1989). Knowledge can be viewed as being helpful or even necessary to prevent pregnancy, but knowledge surely

is not *sufficient* to avoid pregnancy. Thus as evident in the preceding chapters and other program summaries (Hayes, 1987), pregnancy prevention programs are usually more broadly conceptualized as including values reinforcement, decision making, skill building, contraceptive services, and motivation to avoid pregnancy through life options.

Following the JUST SAY NO antidrug campaign in the late 1980s, it was suggested that adolescents should also JUST SAY NO to sex. An important distinction exists, however, between using drugs and having sexual intercourse. It would be best never to use drugs, and it can be said that doing drugs is always wrong, but that is not the message that most adults would want to be conveyed about having sexual intercourse.

Instead of JUST SAY NO, perhaps a more appropriate phrase would be JUST SAY NOT YET. This phrase communicates that it is the *timing* of sexual intercourse that is at issue, not that it is always wrong. If not now, then when? The Adolescent Family Life Act of 1981 and the Office of Adolescent Pregnancy Programs in the Department of Health and Human Services that has administered the legislation have taken the stand that the emphasis should be on sexual abstinence until marriage. Some program models featured in this book (Howard & McCabe, Chapter 4; Thomas et al., Chapter 2) are based on the less restrictive premise that any delay in sexual initiation could be beneficial, and such programs seek to postpone sexual involvement without specifying for how long.

Instead of, or in addition to, a sexual postponement message, other program models (Barth et al., Chapter 3; Eisen & Zellman, Chapter 9; Kirby & Waszak, Chapter 8; Zabin, Chapter 7) emphasize that whenever sexual intercourse occurs, effective contraception must be used to prevent unwanted pregnancy. This model might be captured by the phrase NOT WITHOUT USING SOMETHING. If contraception is viewed as a central program element, several related issues come into play. Because so many teen pregnancies occur soon after the initial sexual experience (Zabin, Kantner, & Zelnik, 1979), it is important to use contraception from the beginning and then to use it consistently thereafter. It is also important for adolescents to avoid or abandon less effective methods, such as withdrawal, in favor of more effective methods. Further, for contraceptive programs to succeed with adolescents from diverse backgrounds, it is important that contraceptive services be readily accessible to teens at low or no cost.

A final program model might be characterized by the phrase I HAVE OTHER THINGS TO DO. Some programs emphasize giving young

people alternative life options, whether or not they address sexual behavior and contraception specifically. Programs like Teen Outreach (Philliber & Allen, Chapter 6) include opportunities for involvement and service in the present, as well as a clearer sense of possibilities for the future. Life Options program models give teens "other things to do," building on the premise that adolescents need motivation and opportunities perhaps as much as they need abstinent values or contraceptive knowledge in order to avoid adolescent pregnancy.

Other more specific ways exist of characterizing the prevention models or approaches presented in this book. Table 10.1 summarizes the main features of these programs. It is worth noting that these programs involved teens of all ages, but especially preteens and young teens, as would be expected of primary prevention efforts. The amount of program contact varied from as few as five sessions in about 2 months (Nicholson & Postrado, Chapter 5) to about once per week for an entire school year (Philliber & Allen, Chapter 6). Some programs (Kirby & Waszak, Chapter 8; Zabin, Chapter 7) were available on an open, walk-in basis throughout the junior or senior high school year. Some programs had later "booster" program follow-ups or linked program components that continued after the first year (Nicholson & Postrado, Chapter 5).

Another program dimension that stands out in Table 10.1 has to do with the site of program delivery; most programs are school-based or school-linked, others are agency- or clinic-based. As also summarized in Table 10.1, some program models (Thomas et al., Chapter 2) emphasized education and instilling knowledge, while other programs (Barth et al., Chapter 3; Eisen & Zellman, Chapter 9; Howard & McCabe, Chapter 4) emphasized learning and rehearsing the skills needed to negotiate sexual and contraceptive decisions successfully. Still other programs referred to or directly offered contraceptive services through which young people can translate their decisions into action. Finally, some of these programs attempted to influence basic values about the appropriateness and timing of adolescent sexual activity.

#### Program Lessons

Several lessons can be learned from the program models presented in this volume, as well as from other recent sources (Hardy & Zabin, in press; Hayes, 1987, Chapter 6; Doms & Herendenon, 1990; Paikoff & Brooks-Gunn, in press). These basic principles of adolescent pregnancy prevention programs can be summarized as follows.

**Table 10.1** Selected Features of Programs Designed to Prevent Adolescent Pregnancy

<i>Chapter/ 1st Author</i>	<i>Target Ages</i>	<i>Number of Contacts</i>	<i>Exposure Time</i>	<i>Delivery Site</i>	<i>Targeted Behavior</i>	<i>Competency Focus</i>	<i>Unusual Features</i>
2 Thomas	11-16	10(1 hr)	6-8 wks	schools	sexual intercourse	knowledge, skills	small group tutors
3 Barth	15.4 (mean)	15 classes	3 wks	schools	sexual intercourse, contraceptive use	knowledge, skills, motivation	teacher training and delivery
4 Howard	8th-graders	10 classes	3 months	schools	sexual intercourse, contraceptive use	knowledge, skills	teen leaders
5 Nicholson	12-14	5 (2 hr) to 9 (2 hr) sessions	1-3 yrs	Girls Incorporated centers	sexual intercourse	knowledge, skills, motivation	age-phased program
6 Philliber	teens	1 hour/week minimum	1 school yr	schools	avoid pregnancy, (no deliberate target behavior)	values, skills, motivation	community service involvement
7 Zabin	Jr & Sr high school students	varied, open access	varied 1-3 yrs	schools and clinics near schools	sexual intercourse, contraceptive use	knowledge, skills	combined education, counseling, & medical services
8 Kirby	12-18	varied, open access	varied	health clinic in schools	contraceptive use, other health behaviors	health promotion	provided health care services
9 Eisen	13-19	12-15 hrs in 8 programs	2-3 weeks	work study programs & schools	sexual intercourse, contraceptive use	knowledge, skills, attitudes, motivation	theory-based; small group discussions

1. *The program goals and objectives must be clear and specific.* Program goals and objectives cannot be achieved unless they are clearly understood. The overall goal might be to prevent or reduce adolescent pregnancies, but more specific objectives need to be clearly stated, understood, and supported by project staff. Consistent with the goal of preventing adolescent pregnancy are the following more specific objectives: help adolescents acquire the social skills to resist sexual pressures, help adolescents personalize the risks of early sexual involvement, and increase adolescents' use of an effective contraceptive at first sexual intercourse. The programs described in this volume had clearly targeted objectives linked to the goal of preventing adolescent pregnancy. Such concrete objectives as these help focus program efforts toward attaining broader goals.

2. *The target population must be relatively young.* Because adolescents begin having sex in their mid teens, on average, and intercourse occurs in the early or even preteens in some populations (Hofferth, Kahn, & Baldwin, 1987; Zabin, Smith, Hirsch, & Hardy, 1986), adolescent pregnancy prevention efforts must start at young ages. This is especially important when the program objectives are to delay the onset of sexual intercourse and/or increase contraceptive use at first intercourse. Some programs in this book (Barth et al., Chapter 3; Howard & McCabe, Chapter 4) were clearly most effective with those who were young and sexually inexperienced. The Girls Incorporated (Chapter 5) evaluators found that pubertal changes in 12-13-year-old girls increased tensions and made communication more difficult, perhaps suggesting that beginning even sooner (maybe ages 9-11) would be better. Similarly, Postponing Sexual Involvement (Chapter 4) has been revised to include a version for fifth-graders. We think that some parallel exists with the fact that drug and smoking prevention programs have found greater success with preteens and with younger than older adolescents (Ellickson & Bell, 1990).

3. *The program should be intensive.* Simply put, the program must be substantial to have a substantial effect. The program must have a level of intensity commensurate with the expectation that it will change adolescent behavior. Both the number of contacts (classes, sessions, or visits) and their duration over time are important in this respect. Some of the programs described in this volume involved participants at least once a week over an entire school year (Philliber & Allen, Chapter 6). It is usually unrealistic to expect a few sessions delivered over several weeks to have any powerful effect months or years later as adolescents

face the sexual and contraceptive decisions that could place them at risk of pregnancy. Exposure to prevention programs generally need to be more frequent and longer lasting in order to bring about substantial and lasting behavior change.

4. *The program should be comprehensive.* Many programs show increases in knowledge, but often without showing behavior change. It is increasingly clear that several components in concert have the greatest promise of producing behavior change. Comprehensive programs usually include some combination of values and of knowledge-based education, decision making and social skills training, reproductive health services, and alternatives or options that enhance motivation to avoid adolescent pregnancy. Most of the programs featured in this book were built on two or more of these components.

5. *The program should consider leveraging parent and peer support.* The fact that the prevention programs described in this book are school- or clinic-based reflects the advantage that programs gain from being based where the target population is concentrated in large numbers and where (as in schools) they are a semicaptive audience. Such programs can attempt to change and take advantage of peer group norms in classrooms (Barth et al., Chapter 3) or in the entire school, especially when using respected teen leaders as role models (Howard & McCabe, Chapter 4). It might be a disadvantage, however, that school- and clinic-based programs only superficially involve, or leave out entirely, the families of adolescents being served. Programs that more strongly encourage or depend on parental involvement are probably more difficult to implement, especially if they are home-based, and they are impossible to implement independent of self-selection factors, as chapter authors have noted. Although the prevention effects of parent involvement are not yet clear, it would seem that leveraging parental involvement, at least in some families, could bring an additional and important source of influence to bear on preventing adolescent pregnancy.

### *On Evaluation Designs*

A variety of program design, monitoring, and evaluation issues were presented in the introductory chapter, and many of these issues have reappeared in individual chapters. The focal point of the evaluations featured in this book, however, has been impact evaluation—drawing conclusions about program effects. Program developers, evaluators,

agency professionals, and policymakers all want to know, Did the program work? or For whom did the program work? While other aspects of program evaluation are important, assessing the program's effects—its impact—is fundamentally important. Below we revisit selected impact evaluation issues in light of the preceding chapters. More advanced treatments of impact evaluation issues are widely available in a variety of methodological literatures. (For broader treatments of these issues specifically focused on adolescent pregnancy prevention, see Card, 1989; Philliber, 1989; Zabin & Hirsch, 1988.)

### Comparison Groups

To assess the effect of any program, the fundamental question is, Compared to what? A prepost single group comparison (the one-shot case study) simply compares what a group was like after the program (e.g., the level of sexual behavior, contraceptive use, or pregnancy) with what it was like before. Because so many other things, besides the program, could have affected the group during the interim, such a comparison has little or no scientific validity. So a variety of other comparison groups has been devised.

The ideal comparison group is like the treatment group in every way. Because it is difficult, if not impossible, to find such groups naturally occurring, the ideal scientific procedure is to compose comparison groups by randomly assigning who will receive the treatment and who will not. Evaluation designs that use random assignment are sometimes called *true experiments* (Campbell & Stanley, 1963). As shown in Table 10.2, several of the projects in this book created control groups by randomly assigning individuals (Eisen & Zellman, Chapter 9), classes (Barth et al., Chapter 3), or schools (Thomas et al., Chapter 2) to treatment and control groups. A subset of the Teen Outreach evaluation (Philliber & Allen, Chapter 6) also was based on random assignment of individuals.

The other evaluations featured in this book were based on *quasi-experimental* designs, so named because the comparison groups employed were not created by random assignment (see Table 10.2). Using quasi-experimental designs with nonequivalent control groups is a more serious problem in some evaluations than others. The Teen Outreach comparison group was remarkably similar to the treatment group based mostly on the selection strategy of having participants simply choose a peer who would fill out the survey "about like you did." On the other

**Table 10.2** Selected Features of Impact Evaluation Research Designs Used to Study Pregnancy Prevention Programs

Chapter/ 1st Author	Number of Cases	Design	Comparison Group	Outcome Measures
2 Thomas	3,290	true experiment	randomly assigned schools	sexual intercourse, contraceptive use, pregnancy
3 Barth	1,033	true experiment	randomly assigned classes	sexual intercourse, contraceptive use
4 Howard	1,005	quasi-experiment	nonparticipants from records of same hospital	sexual intercourse, contraceptive use, pregnancy
5 Nicholson	343	quasi-experiment	nonparticipants self selected	pregnancy, contraceptive use
6 Philliber	1,028	both true and quasi- experiments	comp. students nominated by participants, some random	school suspension, failing, dropout, pregnancy
7 Zabin	3,944	quasi-experiment	students in other, nontreated schools, and in same schools prior to treatment	sexual intercourse, contraceptive use, pregnancy
8 Kirby	12 schools: 6 treatment, 6 control	quasi-experiment	students in other, nontreated schools, and in same school prior to treatment	sexual intercourse, contraceptive use
9 Eisen	1,444	true experiment	randomly assigned individuals or classes	sexual intercourse, contraceptive use, pregnancy avoidance

hand, the original Girls Incorporated comparison group was found to be quite different from participants (Nicholson & Postrado, Chapter 5). Consequently, the strategy was followed of ignoring the original comparison group, and instead, subdividing those who were supposed to

participate into those who actually did (participants) and those who were eligible to participate but did not (nonparticipants). This strategy produced relatively equivalent groups. Still, selection bias caused by unmeasured variables (e.g., motivation, ability) remains a major threat to inferences about program effects when the groups being compared in any study have come about by a selective process.

Overall, the evaluation designs of the projects featured in this book show an intriguing diversity of comparison groups. These comparison groups reflect the diverse programs being evaluated, the practical problems of research design, and the ingenuity of the evaluators. The group that received the program has been compared to a group that remained unserved by that program (Philliber & Allen, Chapter 6), to those who received the standard curriculum (Barth et al., Chapter 3; Eisen & Zellman, Chapter 9; Thomas et al., Chapter 2), to those who received alternative programs, to those who were eligible to be served but were not (Nicholson & Postrado, Chapter 5), or to those in demographically similar schools nearby (Kirby & Waszak, Chapter 8; Zabin, Chapter 7).

#### Dosage

*Dosage* is the amount of each program component the individual participant actually received. Differences in individual dosage or exposure to an effective program will explain variation in participant outcomes. Dosage can also be thought of in terms of program delivery. The difference between the program as planned and as it is delivered is often substantial. Both program directors/managers and evaluators need to know the extent of this discrepancy. Sometimes the argument is made that monitoring dosage levels is unimportant because actual program implementation will always leave some participants less served, either by their own choice or because of problems in program delivery. Dosage variations will be true of program delivery in the real world, but that is not the issue here. The point is that program effects cannot be assessed without knowing how much of the program was actually delivered to and received by individual participants.

It is our view that not enough attention is paid to the extent of exposure to the program. Teen Outreach is a rare exception in which more subtle findings have been revealed by examining dosage of the intervention (Allen, Hoggson, & Philliber, 1990). In designing a prevention program, we encourage evaluators to collect relevant dosage information in the form of class attendance, clinic visits kept, and so

on, that could be *individually linked* to the sexual, contraceptive, and pregnancy outcomes of interest. Program effects can be most precisely determined when it is possible to link individual program dosage and outcome measures.

#### Measurement

Major difficulties can arise in measuring adolescent sexual and contraceptive behavior and pregnancy experience. It is a credit to the programs featured in this book that they all obtained measures of behavior (see Table 10.2), in addition to the more usual measures of knowledge and attitudes. Even more significant is the range of key variables that were measured, including sexual behavior, contraceptive use, pregnancy, and births. These data are sensitive and oftentimes difficult to collect. The McMaster (Thomas et al., Chapter 2) project "private ballot" is a unique technique devised to address parental concerns about asking their children sensitive personal questions, and at the same time not compromising the scientific need to obtain data about adolescent sexual behavior (Mitchell et al., 1991).

Most of the data used to evaluate pregnancy prevention programs rely on adolescents' own reports of their sexual and contraceptive behavior, and it is obvious why this is the case. Like all self-reports of behavior, however, there are several threats to the reliability and validity of these measures. It has been suggested (Rodgers, Billy, & Udry, 1982) that Murphy's laws could be rewritten to include the following axioms of survey research.

1. No matter how well stated the question, someone will be confused by it.
2. No matter how nonsensitive the question, someone will lie to it.
3. No matter what the question, someone will answer without reading it.
4. No matter how interesting a question is or where it is placed, someone will skip it.

In short, some responses to survey questions inevitably will contain confusion, lies, random responses, and missing data. Even more than adults, adolescents might not answer questions correctly because they do not understand them or because they do not know the answers. These problems are endemic in descriptive self-reports about sex, contraception, and pregnancy, and inconsistencies become more evident when

multiple responses are obtained over time (see Howard & McCabe, Chapter 4, Appendix).

A common adolescent sexual behavior question is often phrased something like the following: "Have you ever had sex?" or "Have you ever had sexual intercourse?" One threat to obtaining valid answers to this question is confusion—some respondents do not understand what this question means. Some preadolescent and younger adolescent respondents do not understand what sexual intercourse is. This could be called the "cognitive" source of confusion in adolescent self-report data about sexual intercourse. For example, in the second round of a longitudinal survey, one young teen wrote, "In the first questionnaire I said I'd had intercourse, because I thought I had, but now I really have and I know I hadn't before" (Newcomer & Udry, 1988).

A second, and probably more common, source of confusion arises because adolescents who cognitively understand the concept, perhaps even those who have had coitus, are not necessarily familiar with the term "sexual intercourse." This could be called the "semantic" source of confusion and error in adolescent self-reports of sexual experience. Adolescents are more likely to have heard and used four-letter slang terms or phrases like "getting laid" or "going all the way." Carefully constructed surveys, as in most of the projects described in this book, now contain phrases and synonyms for sexual intercourse to reduce the chance for semantic confusion. The following examples are from the 1981 National Survey of Children (NSC), the 1988 National Survey of Family Growth (NSFG), and the 1988 National Survey of Adolescent males (NSAM).

*NSC: Q126:* "People refer to sexual intercourse in many ways—'making love,' 'having sex,' or 'going all the way' . . . Have you done this?"

*NSFG: C5:* "At any time in your life, have you ever had sexual intercourse (that is, made love, had sex, or gone all the way)?"

*NSAM: F6:* "Have you ever had sexual intercourse with a girl (sometimes this is called 'making love,' 'having sex,' or 'going all the way')?"

In each of the above examples there seems to be little chance that the questions would be misunderstood by those who understand what the concept of sexual intercourse means. A more detailed measurement

strategy, developed by Udry and colleagues at North Carolina and also used in the NSAM, is a list of gradually more intimate sexual behaviors culminating in coitus. It is so specific and incremental that few respondents would be confused about the question of whether or not they have ever had sexual intercourse. Sometimes sexual intercourse is defined as "penis in vagina," perhaps further reducing the chance for misunderstandings.

A third potential source of confusion in adolescent self-reports of sexual intercourse arises because no distinction is made between coercion and consent. This could be called the "consent" source of confusion. Among teenagers who have had sexual intercourse are those who have done so willingly and those who have been involved in incest or who have been otherwise pressured, coerced, or raped. A respondent might report having had sexual intercourse when her only experience was involuntary. Or, conversely, a young woman who had been sexually victimized by incest or rape might answer that she had never had sexual intercourse (willingly). Hence the confusion and potential error in measurement.

One attempt to disentangle this source of confusion is the 1987 National Survey of Children (NSC), which contained the following questions.

*M33:* "Was there ever a time when you were forced to have sex against your will, or were raped?"

*M34:* "How old were you the first time this happened?"

*M35:* "Have you ever (voluntarily) had sexual intercourse with someone of the opposite sex?"

In these 1987 NSC data, about 5% of the respondents answered yes to question M33—that they were forced to have sex against their will (Moore, Nord, & Peterson, 1989). Some confusion probably exists among respondents who have been forced to have sex about whether they should answer yes or no to a general question about whether they have ever had sexual intercourse.

In summary, valid and reliable measures of sexual behavior, contraceptive use, and pregnancy are oftentimes difficult to obtain, but these data are essential to evaluate adolescent pregnancy programs. Parental consent, question wording, and nonvoluntary sexual experiences should all be considered in conducting program evaluation.

### Records

Some program evaluations (Kirby & Waszak, Chapter 8; Thomas et al., Chapter 2; Zabin, Chapter 7) are based on records, in addition to self-reports of behavior. A strength of the McMaster program (Thomas et al., Chapter 2) is the potential to use the Ontario health records of fertility-related medical events to validate teen self-reports of pregnancy in the control and treatment groups. This is unusual because the provincial health records are complete for virtually all female participants. These record data might also be useful to find out missing information about cases lost to follow-up, in addition to corroborating self-reports, as was done in the Grady Hospital study (Howard & McCabe, Chapter 4).

In self reports of sexual behavior the more sensitive or threatening the question, the greater the probability that respondents will lie, leave the question unanswered, or give inconsistent responses when asked the same question more than once (Rodgers et al., 1982). External records, however, often are lacking or are not adequate to the task of checking for congruence with the self-report of sexual intercourse. STDs and pregnancy are events for which records are kept, and they imply the occurrence of sexual intercourse, but intercourse does not necessarily result in these events. Intercourse is necessary but not sufficient to produce these recorded events, so the records alone will underestimate the incidence of sexual intercourse.

In the Hopkins study (Zabin, Chapter 7) records and logs meticulously kept by staff improved the ability of the evaluators to measure program utilization. Clinic forms, especially designed to augment the research component, were more reliable sources of information than standard program forms would have been.

### Statistical Controls

Groups not composed by random assignment usually differ in some systematic way that is related to how they came to be, (a "selection" effect), and the way(s) that groups differ can easily be mistaken for program effects. Because quasi-experiments rely on the comparison of preexisting groups, it is very important to try to rule out selection bias as a threat to the integrity of the comparisons. In the evaluations featured in this book, it is noteworthy that the researchers attempted to make treatment and comparison groups equivalent (except for their

exposure to the program) in several ingenious ways. This is usually done by testing for group differences on a variety of non-outcome variables, and then statistically adjusting the outcome data to compensate for the effects of those variables by which the groups have been found to differ. Another way of saying this is that the evaluator should search for and identify variables on which the groups differ and then make statistical adjustments to examine *net* treatment effects on the outcomes after the effects of these other variables have been removed. The examination of day versus after-school treatments in Teen Outreach (Philliber & Allen, Chapter 6) as a proxy for student motivation is conceptually interesting in this regard.

Another important way of assuring equivalent group comparisons is to obtain baseline measures of the outcomes so that compensation for initial group differences can be made. This can be done statistically by adjusting for preexisting baseline differences between groups in the outcomes being studied. Sometimes, even with random assignment, groups will differ initially on an outcome variable of central interest to the evaluators. This was true, for example, of the McMaster study (Thomas et al., Chapter 2), in which more of the treatment group males began the study having had sexual intercourse than their counterparts in control schools. An alternative way of analyzing these kinds of data, in which the experimental and comparison groups are both measured at two points in time, is to focus on comparing the amount of change (e.g., Zabin, Chapter 7), instead of pretest and posttest absolute values.

### *On Adolescent Development*

The integration of basic developmental knowledge into the delivery of prevention programs and services for adolescents is a recent phenomenon (Paikoff & Brooks-Gunn, in press). Much information exists regarding basic processes of adolescent development that can inform pregnancy prevention programs; likewise, the findings of program evaluation can often provide insights about basic developmental processes. For example, age-linked findings on the Teen Outreach program published elsewhere (Allen, Hoggson, & Philliber, 1990) suggest that classroom components of the program are more effective for young adolescents than for older adolescents. In contrast, the volunteer work component was more effective for older adolescents than for younger

adolescents. These findings provide avenues for basic researchers to explore different contextual effects across the adolescent years.

In addition to the Teen Outreach findings with developmental implications, the Girls Incorporated program devised a series of prevention strategies for different-aged adolescents. This program provides an elegant explication of the progression of adolescent needs with regard to pregnancy, from initial programs emphasizing parent-adolescent communication and assertiveness skills to later needs regarding future plans and provision of health and contraceptive services.

Other programs address issues of variation across the adolescent participants on dimensions other than age. For example, both the Eisen and Zellman and the Howard and McCabe chapters discuss variation as a function of sexual experience. In addition, these authors (and Thomas et al., Chapter 2) discuss variation in program effectiveness by gender. While initial programs were conducted and evaluated for all adolescents, these results suggest the importance of focusing programs on particular groups of adolescents. In particular, it seems important to address the unique needs of sexually active adolescents relative to youth who have not yet become sexually active (Chase-Lansdale, Brooks-Gunn, & Paikoff, 1991). Postponing sexual involvement is a more appropriate message for adolescents who have not yet had sexual intercourse. Conversely, sexually experienced adolescents might be less likely to respond to programs that emphasize JUST SAY NO, or JUST SAY NOT YET; for these teens, programs emphasizing effective contraceptive use (NOT WITHOUT USING SOMETHING) and/or life options (I HAVE OTHER THINGS TO DO) might be more effective approaches.

In addition to the issues raised by the chapters in this volume, a number of developmental issues must be considered in future basic and evaluation research on pregnancy prevention, and on healthy teenage sexual development more generally (Brooks-Gunn & Paikoff, in press; Hardy & Zabin, in press; Paikoff & Brooks-Gunn, in press; Zabin, 1990). We also believe research on sociocultural factors, including the media, and on the basic social and cognitive processes (e.g., peer and parent networks, decision-making strategies) are important but neglected concerns. Research is needed to document basic processes of adolescent social and cognitive growth and to link these processes over time to adolescents' social and sexual development. Knowledge about the microlevel processes that facilitate or inhibit early sexual activity and contraceptive non-use could add to our understanding of adolescent

development, as well as point out important dimensions that should be taken into account in developing prevention programs.

In short, the interface between basic developmental and program evaluation research represents an exciting new arena for investigators from a variety of disciplines. Researchers studying these issues have the potential of increasing our knowledge regarding adolescent development, as well as enhancing programs and policies that may facilitate more optimal developmental processes for a wider range of adolescents.

### *Conclusions*

It is difficult to design and implement programs that change human behavior. It is no less difficult to evaluate such programs so that clear conclusions can be drawn about their effects. Partly because of the nature of sexual and contraceptive behaviors, and partly because of the age group involved, adolescent pregnancy prevention programs face especially difficult challenges.

For example, some of the programs presented in this book seek to postpone adolescent sexual involvement in a culture that glamorizes sexual behavior. Adolescents on their way toward gaining adult privileges are not easily convinced that they should wait for anything (least of all the physical pleasures of sex), especially when its positive benefits are so alluringly portrayed. The pleasurable aspects of sexual activity for the individual and the couple, pressures and status in their peer group, and social expectations portrayed in the larger culture, are in constant tension with the prevention messages that it would be best for teenagers to postpone having sexual intercourse.

Different obstacles hinder the effectiveness of pregnancy prevention programs that emphasize the use of contraception. The young adolescent has to understand that sexual intercourse leads to pregnancy and that contraceptives can prevent conception. If knowledge and the requisite motivation to avoid becoming pregnant exist, the risk of pregnancy must be personalized to the extent that specific contraceptive plans are made. To contracept effectively, the adolescent must recognize and accept his/her sexuality, anticipate future sexual activity, and plan ahead. Then the social, economic, and psychic costs of obtaining and using contraception must be outweighed by the perceived risks and costs of pregnancy. The use of contraceptives might need to be negotiated with the partner. Further, this kind of complex decision-making

process must be repeated regularly because most methods of contraception require action on a daily basis or with every act of sex. Pregnancy avoidance is sometimes difficult for adults, and it should not be surprising that many teens find themselves faced with unintended pregnancies.

Another difficulty for adolescent pregnancy prevention programs is that the negative consequences of early sexual behavior, pregnancy, and parenthood do not seem real to some adolescents, though female adolescent clients of family planning clinics in one study did evaluate adolescent pregnancy and childbirth as negative events, relative to later pregnancy and childbirth (Paikoff, 1990). But for those who are young and healthy, threats to health and future well-being might seem too remote to be easily personalized (Weinstein, 1980). Scare tactics about negative consequences appear to have little effect. To some extent this problem is inherent in human nature, exacerbated perhaps by the adolescent perception of personal invulnerability, the personal fable that "it won't happen to me." (See Furby & Beyth-Marom, in press, for a discussion of how adolescents' risk perceptions might differ from adults' perceptions, given their different developmental concerns.)

In the face of such obstacles, adolescent pregnancy prevention programs must be ingeniously planned, intensively implemented, and carefully evaluated. The programs reviewed in this book have made it clear that no simple solution to preventing adolescent pregnancy exists. Providing knowledge (JUST SAY KNOW) and encouragement for teenagers to wait (JUST SAY NO or NOT YET), and encouraging or dispensing contraceptives (JUST SAY NOT WITHOUT USING SOMETHING) are fundamental approaches. Postponing sexual intercourse and contraceptive approaches are not mutually exclusive: A program that provides contraceptives can also postpone the onset of sexual intercourse as has been demonstrated here (Zabin, Chapter 7). Furthermore, these strategies can be made more effective by increasing motivation and skills to avoid pregnancy and by helping teens understand that they could have much to gain by avoiding pregnancy until they are older (I HAVE OTHER THINGS TO DO). The projects reviewed here provide evidence that programs that are intensive and comprehensive can bring about modest reductions in adolescent pregnancy and parenthood.

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# Helping Teenagers Postpone Sexual Involvement

By Marion Howard and Judith Blamey McCabe

## Summary

In 1983, the Henry W. Grady Memorial Hospital in Atlanta began a family planning-based outreach program for eighth graders in a local school system. The program is led by older teenagers and focuses on helping students resist peer and social pressures to initiate sexual activity. Evaluation of the program, based on telephone interviews with 536 students from the hospital's low-income population, revealed that among students who had not had sexual intercourse, those who participated in the program were significantly more likely to continue to postpone sexual activity through the end of the ninth grade than were similar students who did not participate in the program. Because of their lower rate of sexual activity, program students also experienced comparatively fewer pregnancies than no-program students.

## Introduction

Grady Memorial Hospital's first sex education program in the schools was begun in the mid-1970s and consisted of five classroom periods covering basic human sexuality and decision-making information.<sup>1</sup> The curriculum, which includes discussion of contraceptive methods, was developed by the Emory University School of Medicine/Grady Memorial Hospital Teen Services Program, a family planning program for students aged 16 and younger. Young people were encouraged to seek contraceptive counseling and services through this program and other community family planning agencies if they needed them. The curriculum was presented to all eighth grade students (13-14-year-olds) in a local school system by adult health educators,

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**"By the end of eighth grade, students who had not participated in the program were as much as five times more likely to have begun having sex than were those who had had the program."**

nurses and adolescent counselors from the Emory/Grady Teen Services Program.

Early evaluation of the program indicated that simply providing young teenagers with such information was not effective in changing sexual behavior. The young people who had the five classes of factual and decision-making education were not more likely to refrain from sexual intercourse than those who did not have the classes, nor were they more likely to use contraceptives or prevent pregnancy if they became sexually involved.<sup>2</sup>

In rethinking the educational outreach program, hospital staff reached several conclusions about how it should be revised. First, the staff considered research done on programs intended to reduce the incidence of other negative health behaviors (e.g., smoking, alcohol use and drug use) among young people. Many of these health education programs are knowledge-based: They assume that adolescents have sex, smoke, drink or use drugs because they lack knowledge about specific aspects of such behaviors and their harmful effects. They also assume that if young people are given factual knowledge—along with information about decision-making that will enable them to apply such knowledge—their attitudes and behaviors will change. Research has shown, however, that knowledge-based approaches (including those with decision-making components) are not particularly effective in reducing negative health behaviors among young people.<sup>3</sup>

The limitations of knowledge-based programs have been demonstrated in the field of sex education as well. Douglas Kirby<sup>4</sup> studied 10 exemplary knowledge-based sex education programs in the

United States and found that although the young people in such programs learned a great deal, their knowledge gains did not lead to behavioral changes. Students exposed to such programs were not more likely to postpone sexual involvement nor were they more likely to use contraceptives when they became sexually active.

The Grady hospital staff also considered the need to make age-appropriate revisions to the program. Study of adolescent development shows that cognitive growth lags behind physical maturation. Until about the age of 16, adolescents are still using concrete thinking skills. As a result, young teenagers have limited ability to recognize the potential impact of their choices; they are less likely than older teenagers to think about the future and to consider the consequences of their actions.

These assessments correlate with Michael Young's secondary analysis of a 1986 Harris Poll commissioned by Planned Parenthood. Young showed that neither sex education nor knowledge are related to postponement of sexual intercourse or use of contraceptives among adolescents younger than 17: A knowledgeable 13-year-old is no more likely to use contraceptives than is an uninformed 13-year-old. Young concluded, "It may be . . . that developmentally, younger teen[ager]s are not able to effectively apply the knowledge that they have."<sup>5</sup> Thus, educational programs must be age-specific, promoting attitudes and skills that young adolescents can use until they gain more mature skills in managing their sexuality.

One of the more promising new educational models with respect to reducing negative health behaviors is known as the social influence or "social inoculation"

model and is based on the concept that young people engage in such behaviors, including early sexual activity, partly because of societal influences, both in general and, more specifically, from their peers. The model uses the public health concept of immunization as a strategy for combating social and peer pressures that encourage negative health behaviors. By exposing young people to these "noxious" social influences in small doses, while at the same time enabling them to examine such influences and develop skills to deal with them, this strategy helps young people eventually build up an "immunity" to them. Programs based on this model rely on specific activities that help students identify the origins of pressures to use drugs, smoke, drink or have sex, to examine the motivations behind those pressures and to develop skills to respond effectively. This approach has yielded encouraging results: Interventions designed to prevent or reduce smoking have produced differences in rates of cigarette use among young people ranging from 25 to 66 percent, depending on the program.<sup>6</sup>

The social inoculation approach also uses *role models*—teenagers slightly older than those being given the program—to present factual information, identify pressures, role-play responses to pressures, teach assertiveness skills and discuss problem situations. Teenage leaders have been shown to produce greater and more lasting effects than adults.<sup>7</sup> Young people want to be and act older than they are. Besides imparting attitudes and skills, slightly older teenagers illustrate that those who "say no" to the pressured behavior can be admired and liked by others. They also clearly demonstrate to the younger teenagers that the behavior—for example, having sex—is not the way to attain such status.

### The Revised Program

Based on these considerations, Grady Hospital revised its outreach program by creating a new component using the social influence model.<sup>8</sup> The program, called Postponing Sexual Involvement, was field-tested in Cleveland and Atlanta, and in 1983, the Ford Foundation provided funds for a large-scale implementation of the series in Atlanta schools. Postponing Sexual Involvement is an experiential program. Because young teenagers do not respond well to lectures, this series is designed to involve them in thinking about and discussing social and peer pressures to become sexually involved, and then practicing skills that will be helpful to them

in resisting these pressures. Postponing Sexual Involvement is presented by older teenagers: Each session is generally led by one male and one female student from 11th or 12th grade. The student leaders are recruited, trained and supervised on-site in each classroom by the Emory/Grady Teen Services Program staff.

Because young people also need the detailed information about reproduction, family planning and sexually transmitted diseases contained in the original curriculum, Postponing Sexual Involvement was added to the existing program. The complete, 10-period program is presented each year to all eighth grade students in 19 separate schools—approximately 4,500 students each year.

Although one of the major *implicit* goals of the earlier program was to assist young people in postponing sexual involvement, that goal is made *explicit* in the revised outreach program. This approach was given support by a random sample survey of more than 1,000 sexually active girls aged 16 and younger seen in the Emory/Grady Teen Services Program clinic.<sup>9</sup> Of nearly two dozen items thought to be of interest, teenage girls were most likely to indicate that they wanted more information on "how to say 'no' without hurting the other person's feelings" (84 percent). Thus, the new program shows promise of meeting the needs of many young people, as well as those of the parents and the community.

The philosophy of Postponing Sexual Involvement is that:

- Persons younger than 16 are not able to fully understand the implications of their actions.
- Persons younger than 16 generally are not mature enough to deal with the consequences of their sexual actions. Furthermore, the needs that young people are trying to meet through sexual intercourse could best be met in other ways.
- Young people under 16 are often pressured into doing things they really do not want to do. Pressure to have sexual intercourse comes from peers and also from glamorous images presented by the media.
- Young people need awareness and skills to be able to resist pressure to become sexually involved. They need support and practice in learning how to resist this pressure.
- Young people respond most favorably to programs promoting postponement of sexual intercourse when the information about how and why to say "no" comes from peers slightly older than themselves.

The program primarily focuses on the

social and peer pressures that lead young people into early sexual involvement and on ways to resist such pressures. The emphasis is on why young people are having sex and how they might avoid it, rather than on the consequences of such behavior. Examples of pressures from the media as well as scenes depicting problems young people face in relating to peers are presented in the videotape or slides that accompany the series. Although five classroom periods may not seem like much time, each session concentrates on variations of a single message—how and why to postpone sexual involvement. In addition, because the material is presented by older, socially successful students, this five-session series may exert a more powerful influence than would a longer series taught by adults. Generally the first four sessions are given fairly close together—four classroom periods in a week or one each week for four weeks. The fifth session reinforces program content and is best given 1-3 months later, after students have had time to think about the material.

To evaluate the revised program, a prospective study was designed to determine whether adding Postponing Sexual Involvement to the existing human sexuality program would reduce the rate of sexual involvement among young people. The assumption was that a reduction in the rate of sexual involvement also would reduce pregnancy rates.

The specific population used for the evaluation were low-income teenagers who were most likely to utilize Grady Memorial Hospital, a public facility, whenever they needed health care. Such teenagers are at high risk for early sexual involvement and poor pregnancy outcomes. Hospital birth records were used to identify male and female students entering eighth grade in 1983 who were born at the hospital and who had remained in poverty, as indicated by the fact that they or their mother had received care from the hospital within the last five years. It was anticipated that a portion of these young people would be students in the school system where Grady's outreach education program was being given, and that another portion would be attending other school systems, thereby forming a natural comparison group. The evaluation was part of a larger study of the health habits of eighth and ninth grade students. By using this broader approach, Grady staff were able to surround the questions relating to sexual behavior with those about eating habits, exercise and sleep habits, smoking, drinking, and drug use, so that

the sexual behavior questions would not stand out.

The broad health information and the specific data needed to evaluate the program were collected through telephone interviews conducted at the beginning, middle and end of eighth grade—when the program was given—and at the beginning and end of ninth grade. Parental permission was sought for student participation in the study, and 99 percent of the parents contacted granted such permission. When sensitive questions were asked during the telephone interviews, students were given verbal codes to use in answer-

ing so that anyone within listening distance would not understand their responses. The telephone interviews were carried out through a subcontract with the Georgia State University Center for Public and Urban Research. At least 10 repeat phone calls were made to reach subjects.

In addition to collecting data through these interviews, program personnel reviewed the medical records of the young women in both the program and no-program groups who had been seen in the hospital in the last five years. The review, conducted 10 months after the last interview, examined hospital records for information regarding sexual involvement, pregnancy tests, treatment of sexually transmitted diseases, family planning counseling and family planning services. The interview and hospital data were found to be remarkably consistent: Contradictions with interview data occurred in only one percent of the cases.

The data analysis focused on the behavioral outcomes of the study population. The key questions to be answered by the evaluation were: Would students who had not had sexual intercourse before they had the program postpone sexual involvement in the eighth grade? Would postponement continue through the ninth grade? Would both boys and girls postpone sexual involvement? Would students who began sexual intercourse after having the program report less frequent intercourse? Would girls who had the program have fewer pregnancies? Would students who had had sexual intercourse before the program change their behavior as a result of the program?

## Results

The study population comprised 536 low-income minority students, 395 from the 24 program schools that received the outreach program in the 1984–1985 school year, and 141 students from 29 other schools in the local area. There were no statistically significant initial background differences that would bias any outcomes in favor of those who were to receive the program (Table 1).

To evaluate the effects of Postponing Sexual Involvement, students in program schools were divided into two groups: those who had not had sexual intercourse before the program, and those who had. Both of these target groups are contrasted and compared with the students who did not participate in the program. The percentage of students who reported having had sex at the beginning of the eighth grade was slightly higher in the program

schools (25 vs. 23 percent). Boys in both groups of schools were much more likely to say that they had had sexual intercourse than were girls: Forty-four percent of all eighth grade boys interviewed said they had had sex, compared with just nine percent of eighth grade girls.

Of the 536 students who completed all five of the study's interviews, 131 (25 percent) reported that they had had sexual intercourse before their preprogram interview while 387 students (72 percent) said they had not yet had sexual intercourse. In addition, there were 18 students (three percent) in program schools for whom it could not be determined whether or not they had had sexual intercourse prior to the program. These students said they had not had sex when they were first interviewed but indicated at the end of the same semester in which they were given the Postponing Sexual Involvement program that they had had sex. It is not known whether they began having sex prior to the program, during the program or after the program. These 18 students are not included in the presentation of results, not only because their status is unclear, but also because the significant study findings remain even when these students are conservatively distributed among the preprogram and postprogram sexually involved groups.<sup>10</sup>

Of the 387 students who had not had sexual intercourse by the time of their preprogram interview, 278 attended schools in which Postponing Sexual Involvement was given, and 109 were in schools where the program was not offered. As Table 2 (page 24) shows, 256 of these 278 students in program schools actually attended the Postponing Sexual Involvement program. These students were significantly more likely to postpone sexual intercourse than were the 109 similar students in other schools who did not have the program. Indeed, by the end of eighth grade, students who had not had the program were as much as five times more likely to have begun having sex than were those who had had the program: 20 vs. four percent. The program also appeared to have a lasting effect. By the end of ninth grade, just 24 percent of the students who had participated in the program had begun having sex, compared with 39 percent of those who had not.

Not included in Table 2 are the 22 additional students who had not had sex and, for some reason, missed the program when it was offered in their schools. Although the number of such students is small, it is interesting to note that their rate of sexual

**Table 1. Percentage of students with various behavioral and background characteristics, by school program status**

Characteristic	Program schools (N=395)	No program schools (N=141)
Is black	99	99
Lowest income categories (paid less than standard low-income fee at last hospital visit)	58	45*
Lives with two parents	36	57*
Gets mostly A or B grades in school	71	65
Plans more education after high school	86	87
Is involved in club, team or activity	53	52
Is leader in club, team or activity	20	16
Never says no when asked to do something don't want to do	13	8*
Has boyfriend/girl friend	46	38
Thinks most/several friends have had sex	45	45
Thinks almost everybody/a lot of 8th graders have sex	41	40
Thinks best friend has sex	44	50
Thinks friends would disapprove if had sex	44	36
Thinks parents would be very upset if had sex	73	73
Alone with someone who wanted sex last month	41	47
Thinks will have sex in next six months	21	23
Would find it hard to say no to sex with someone they care about	46	49
Has had sex	25	23
Has drunk	21	23
Has smoked	9	6
Gets eight hours' sleep each school night	81	83
Exercises strenuously		
1/2 hour,		
three times/week	92	92
in good health	92	97
Eats fruits/vegetables every day	78	78

\*p<0.05.

**Table 2. Percentage of students who initiated sexual activity after eighth grade, by program status**

Grade and gender	Program (N=256)	No program (N=109)
<b>End of eighth</b>		
Total (N=365)	4	20*
Boys (N=125)	8	29*
Girls (N=240)	1	15*
<b>Beginning of ninth</b>		
Total (N=365)	12	27*
Boys (N=125)	22	42**
Girls (N=240)	7	18**
<b>End of ninth</b>		
Total (N=365)	24	39*
Boys (N=125)	39	61**
Girls (N=240)	17	27**

\*p&lt;0.01. \*\*p&lt;0.05.

involvement more nearly parallels that of the young people in schools where the program was not given than it does that of the young people in their own schools who attended program sessions. By the end of eighth grade, the students who had missed the program were as much as 4.5 times more likely to have begun having sex than were their fellow students (18 vs. four percent). By the end of ninth grade, these students still showed a higher rate of sexual involvement (36 vs. 24 percent). This supports the conclusion that the program itself, and not differences among schools, was responsible for the differences in student behavior.

The program had a pronounced effect on the behavior of both boys and girls who had not been sexually involved before the program, which included 91 percent of girls and 56 percent of boys interviewed at the beginning of eighth grade. As Table 2 shows, by the end of eighth grade, boys who had not had the program were more than three times as likely to have begun having sex as were boys who had had the program. (29 percent vs. eight percent). By the end of ninth grade, 61 percent of no-program boys had begun having sex, compared with 39 percent of program boys.

Postponing Sexual Involvement had an even more striking impact on girls who had not yet become sexually active. By the end of eighth grade, girls who had not had the program were as much as 15 times more likely to have begun having sex as were girls who had had the program (15 percent vs. one percent). By the end of ninth grade, 27 percent of no-program girls had begun having sex, compared with 17 percent of program girls.

To assess whether or not the students perceived Postponing Sexual Involvement as enabling them to have more control over

their sexual behavior, they were asked: "With respect to the information the teen[age] leaders or person from Grady Hospital taught, how helpful will that information be to you personally in saying no to sex?" Of the young people who had not had sex before the program, 95 percent said the program would be helpful personally to them in saying no to sex, and more than 80 percent thought the program would be extremely helpful or very helpful. Overall, girls and boys were almost equally likely to say they thought the program would be helpful personally (92 percent of boys and 96 percent of girls). However, girls were more likely to rate the program as extremely helpful or very helpful.

In analyzing program outcomes, it was important to determine whether students who had had the program were less likely to have boyfriends or girlfriends and, therefore, whether some of the difference in rates of sexual involvement could be attributed to fewer relationships with the opposite sex. However, it appears that overall, those who had not had sex and who had participated in Postponing Sexual Involvement were just as likely, or more likely, to have boyfriends and girlfriends as those in the no-program group. At the beginning of eighth grade, 38 percent of program students and 31 percent of no-program students said they had a boyfriend or girlfriend, and the proportions evened out to slightly less than 50 percent for both groups through ninth grade. At the end of ninth grade, 50 percent of program students and 43 percent of no-program students said they had a girlfriend or boyfriend.

To determine how young people viewed their sexual involvement and what expectations they had for sexual involvement in the future, those who had become sexually involved after the program were asked three questions:

"Which of these statements best describes you now?—I have sex often, I have sex sometimes, I tried sex once or twice, I used to have sex but don't anymore or I never had sex."

"On how many days did you have sex in the last month?"

"Do you expect to have sex in the next six months?"

At the end of ninth grade, very few of either the program or no-program students who began having sex after the period in which the program was offered described their behavior as "used to have sex but don't any more" (eight percent and five percent, respectively). However, approximately 10 percent of the students in both

the program and no-program groups who had indicated that they had had sex some time after the program, said at the end of ninth grade that they had never had sex.

Of all students who had acknowledged having had sex after the program was offered, many more of the no-program group described themselves at the end of ninth grade as having sex "often" or "sometimes" in contrast to the program group (55 vs. 39 percent). Students in the program group appeared more likely only to have experimented with sex: They described themselves much more often than the no-program group as "having tried sex just once or twice" (43 vs. 28 percent). Although Postponing Sexual Involvement discourages experimentation with sex, it also makes the point that just because a person has had sex, it does not mean that he or she has to continue to be sexually active.

In contrast to these findings, among those who had become sexually involved, more no-program students reported at the end of ninth grade that they had not had sex in the last month than did program students (43 vs. 34 percent). This difference was almost entirely among the boys: Forty-four percent of no-program boys said they had not had sex in the last month compared with only 24 percent of program boys. Among girls, however, similar proportions (42 percent of no-program girls and 46 percent of program girls) reported that they had not had sex in the last month. At the end of ninth grade, young people who had had the program and had become sexually involved were more likely to say they did not expect to have sex in the next six months than were those who did not have the program. (This attitudinal measure, taken at each interview, was not a good predictor of actual behavior, however.)

Among students who had not had sex before the program began but did have sex after that time, many did use contraceptives—nearly half in the program group and close to one-third in the no-program group. Not only did more program than no-program students use contraceptives, but 73 percent of the program students who used them said they did so because of what they had learned in school. In the no-program group, only 38 percent said they used birth control because of what they had learned in their schools.

Hospital medical records were used, in addition to the interview statements, to determine the incidence of pregnancy among young women who, at the beginning of the program, had not yet had sex

ual intercourse. Because of the small sample size, a true determination of any reduction in pregnancies is impossible, since pregnancy rates are usually calculated per 1,000 women. Therefore this information must be viewed with extreme caution.

Proportionally fewer program girls became sexually involved, resulting in proportionally fewer girls at risk for pregnancy: Among the 168 girls who had not had sexual intercourse before the Postponing Sexual Involvement program, 28 (17 percent) became sexually active and experienced five pregnancies (18 percent) by the end of ninth grade. Of the 70 comparable no-program girls, 19 (27 percent) became sexually active and experienced three pregnancies (16 percent). If program girls had become sexually active at the same rate as no-program girls and had retained their 18 percent pregnancy rate, they would have experienced eight pregnancies rather than five. Consequently, the program appears to have reduced pregnancies by one-third. However, girls from both groups who became sexually involved had similar pregnancy rates. This finding corroborates previous data suggesting that the provision of human sexuality and family planning information may be necessary but is not sufficient to help many sexually involved young people avoid pregnancies.

Based on the information given by the students throughout the five interviews, 131 of the 536 students (25 percent) had had sexual intercourse by the time of their pre-program interview. Of these, 99 were in program schools (four of these students missed the program when it was offered) and 32 were in no-program schools. The evidence suggests that although Postponing Sexual Involvement was effective for young people who had not yet had sex at the time they were given the program, it was not effective for those who had already become sexually involved. Students who had had sexual intercourse prior to the program did not change their behaviors (i.e., reduce sexual involvement or increase use of contraceptives) as a result of the program. Furthermore, girls who had had sex before the program were not more likely to have fewer pregnancies than were similar students who were not given the program.

### Discussion

The major goal of Grady Memorial Hospital's Postponing Sexual Involvement program given in eighth grade was to assist young people in postponing sexual inter-

course. Overall, nearly three-quarters of the students in the program group had not had sexual intercourse before participating in the program. Based on the reports of these students, the study found that almost all (95 percent) who had not had sexual intercourse and who participated in the hospital's program felt the information personally would be helpful in saying no to sexual involvement. In fact, those who had the program did delay sexual involvement. By the end of eighth grade, students who had not participated in the program were as much as five times more likely to have begun having sex than were those who had had the program. Program students were also more likely to continue to postpone sexual involvement: By the end of ninth grade, 24 percent of the students who were participants in the program had begun having sex, compared with 39 percent of those who were not. The program appeared to help both boys and girls to postpone sexual activity.

The study also found that students who began having sexual intercourse after participating in the Postponing Sexual Involvement program reported less sexual involvement at the end of ninth grade than those who had not had the program. There were also proportionally fewer pregnancies among the program group because there were fewer girls who were sexually involved.

However, the program did not influence the sexual behavior of students who had had sex before participating in the program. These students were neither more likely to reduce sexual involvement nor more likely to use contraceptives (or to have fewer pregnancies) than were similar students who had not participated in the program.

The reduction in sexual involvement and pregnancies experienced by the study group cannot be generalized to the broader group of more than 4,000 other eighth graders who had Postponing Sexual Involvement at the same time. Because of their low-income status, the students in this study are assumed to be among the highest risk students for sexual involvement and pregnancy in the school system in which the program was given. On the other hand, because of the students' high-risk status, the findings are promising indicators that Postponing Sexual Involvement can reduce pregnancy rates by reducing sexual involvement among young high-risk teenagers.

Some parents and educators have wondered whether giving young people information about contraceptives along with support for postponing sexual involve-

ment is too confusing a message. Our data suggest that the two messages are not incompatible. Young people who received instruction from family planning counselors about human sexuality, including family planning, and advice from student leaders about postponing sexual involvement used information from each component of the program. Students involved in the program were more likely both to postpone sexual involvement and to use contraceptives when they did have sex than were the no-program group. However, the majority of young people in both the program and no-program groups who did have sex did not use contraceptives.

Further issues remain to be investigated. Would Postponing Sexual Involvement be as effective with other population groups as it was with this low-income high-risk group? Would it be as effective when led by adults instead of teenage leaders? Would the Postponing Sexual Involvement component given by itself, without a complementary human sexuality education program, be as effective?

The most demanding aspect of implementing the new program has been the time and effort needed to recruit and train the student leaders. They each receive 20 hours of initial training followed once a month by two-hour in-service training sessions to improve skills and reinforce program goals and objectives. Since most are 12th graders, new leaders have to be hired and trained each year. After the first year, however, student leaders helped in the recruitment process by recommending 10th or 11th graders they felt would make good presenters, based on their experience with the program. Another unanticipated source of good candidates was the first eighth grade class to have the program; some of these students were so impressed with the student leaders that they wanted to become leaders themselves when they reached 11th grade.

After potential leaders are chosen, the hospital staff has the responsibility of explaining the teenage leader role to each student's parents and obtaining parental permission. A more time-consuming task each year has been helping student leaders explain their new responsibilities to teachers or principals who previously have not been involved with the program. This problem has been resolved to some degree by a clarifying memorandum from the school administration to all principals and teachers, indicating that the students' absences are to be excused, but that students are responsible for making up all missed school work according to each

teacher's specifications. Nevertheless, orientation of new high school personnel continues to require extra staff time.

The most difficult aspect of using student leaders is their scheduling and transportation. For every session offered in a middle school, teenage leaders have to be contacted and arrangements made for their transportation between schools. The few student leaders who can drive and have access to cars help ease the situation somewhat, as does the availability of leaders in the few high schools that include eighth graders. However, most leaders cannot miss more than a few classes, so when sessions are scheduled all day, it is often necessary for program staff to pick up a second set of leaders to finish the sessions. In addition, since student leaders are paid for each presentation and for their once-a-month mandatory in-service training, the staff must keep accurate records of these assignments and hours and arrange for payment.

Despite these complicating factors, the program staff believes that the student leaders are extremely important, because they make the program more interesting and acceptable to the younger students. Current leaders who had the program as eighth graders say that it was the enthusi-

asm of the student leaders that drew them into active participation in the program and helped them seriously consider the messages being given.

One unanticipated positive outcome of using student leaders is the benefit to the leaders themselves. The program enables them to gain confidence, improve their presentation skills and become more articulate. For some, it has been their first experience in helping others in an organized way, and they enjoy the recognition and respect of the younger students. A few student leaders say the experience has been influential in their decision to become teachers.

Based on our experience in providing eighth grade students with support for postponing sexual involvement as well as acquainting them with methods of birth control and how to use them, we have expanded the hospital's outreach program in two directions. We have developed a program for fifth and sixth graders aimed at helping them handle their curiosity about sexual involvement and develop attitudes and skills to manage sexual behaviors as they become young teenagers.<sup>11</sup> The other effort is a follow-through program aimed at reinforcing for ninth and 10th graders the information and skills

they learned in eighth grade.<sup>12</sup> The program staff hopes that this continuum of consistent educational messages combined with repetitive skill-building will increase the effectiveness of the hospital's outreach program.

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**Trust and Technology**  
Research on preventing adolescent pregnancy

Report on  
Girls Incorporated  
development  
research project

1991

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Girls Incorporated designed the Preventing Adolescent Pregnancy study to include girls and young women. By doing so, the organization does not mean to imply that both the "problem" and "solution" of preventing adolescent pregnancy rest solely with girls and young women. If teenage men were sexually active and if those who were shared more responsibility for contraception, fewer teenage women would become pregnant. If society did not tell girls that their major goals in life are sexiness and motherhood, fewer young women would drift into parenthood in their teen years as a rational solution to loneliness and anxiety. And if we offered all young people more life options, fewer of them would drift into parenthood in search of better opportunities. As an advocacy organization, Girls Incorporated concentrates on young women not because they are solely responsible for the problem of adolescent pregnancy, but because girls and young women are the ones whose lives are most drastically affected by teenage pregnancy.

This report was written by Heather Johnston Nicholson, Ph.D., Leticia T. ... Ph.D. and Faedra Lazar Weiss, M.A.H.L. for the general release of findings from the Girls Incorporated Preventing Adolescent Pregnancy Project on October 2, 1991.

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## Truth, Trust and Technology

New research on preventing adolescent pregnancy

### EXECUTIVE SUMMARY

Teenage pregnancy is a significant social problem. One organization estimates that births to teen mothers cost the taxpayers of the United States \$21 billion in a single year (Armstrong & Waszak, 1990). Each year more than one million young women age 19 or under become pregnant (Henshaw, forthcoming). Of great concern to Girls Incorporated is that 82 percent of the pregnancies to teens in 1987 were unintended (Forrest & Singh, 1990). Thus, teen pregnancy is a problem to young women themselves.

Many young women are at risk of pregnancy. Through the teenage years the proportion of young women who have had intercourse increases significantly by age: 27 percent at age 15, 34 percent at 16, 51 percent at 17 and 70 percent at age 18 (National Center for Health Statistics, 1991). Although the proportion of sexually active teens using contraceptives has increased in recent years, one-third of young women used no birth control the first time they had sex and in 1988 one in five sexually active young women were not using any form of birth control (Forrest & Singh, 1990).

Girls Incorporated, formerly Girls Clubs of America, is a national youth organization with experience in advocacy, research-based programming and evaluation. Since 1981 the organization has been on record as supporting age-appropriate sexuality education and by 1984, 83 percent of Girls Incorporated affiliates provided such education. In 1985 Girls Incorporated began a major project to develop and evaluate a comprehensive program to assist young women in avoiding pregnancy. Involving 750 girls and young women ages 12 to 17, the three-year research project measured the effectiveness of the comprehensive approach and each of its four components.

### The Program and Results of Research

**Growing Together** is a series of parent-daughter workshops for younger teens designed to increase positive communication about sexual information and values, decreasing adolescent pregnancy by delaying the onset of sexual intercourse.

Findings: Girls who participated in Growing Together were less than half as likely as nonparticipants to have sexual intercourse for the first time.

**Will Power/Won't Power** is an assertiveness training program for younger teens designed to help them say and mean "No" while remaining popular with peers of both sexes.

Findings: Girls who participated in nearly the entire program of Will Power/Won't Power were the least likely to have sexual intercourse--only half as likely as nonparticipants and less than one-third as likely as girls who participated for a shorter time. Thus "dosage" makes a difference in this skill-based program.

**Taking Care of Business** is a structured program designed to increase older teens' motivation and skills to avoid pregnancy through educational and career planning, goal-setting, communication skills and responsible decision-making about sexual behavior and contraception.

**Findings:** Young women who participated in nearly the entire program of Taking Care of Business were about half as likely as nonparticipants to have sex without birth control and about one-third as likely as nonparticipants. Consistent participants were one-third as likely as the short-term participants to become pregnant. Again, "dosage" appears to be important to the process of developing skills.

**Health Bridge** is a delivery system that links education at Girls Incorporated centers with community-based health (including reproductive health) services, addressing the psychological and logistical barriers many young people offer as reasons for not practicing effective contraception when they first start having intercourse.

**Findings:** Young women who participated in Health Bridge reported having sex without birth control one-third as often as nonparticipants. Health Bridge participants also were less than half as likely to become pregnant as nonparticipants.

### Recommendations for Youth Organizations, Funders and Policy Makers

**Start early and stay late.** To be helpful, interventions to prevent adolescent pregnancy must start early in a girl's life, by age 9, and stay late, through age 18, as she takes increasing responsibility for her well-being.

**Practice more the better.** "Dosage" can be important to the effectiveness of programs--it takes time to develop skills, think through values and establish a peer group who make decisions about sexuality carefully. Pregnancy prevention is not finished when a program ends but is the responsibility of caring and reliable adults--parents, teachers and community mem-

**Confidence, trust and technology are the keys to responsible behavior.** Every young woman deserves information (truth), support (trust), and skills and resources, including contraception when she needs it (technology). These are the keys that enable a young woman to have the confidence to keep saying "No" and making it stick or to insist upon contraception when she makes a responsible decision to become a mother. Society shares responsibility with youth organizations and women to see that they have access to the services they need.

**Youth organizations and other community groups have a significant role to play in reducing adolescent pregnancy.** These organizations can provide both a support system for the majority of young women who are not sexually active but may feel as if "everybody's doing it" and technical assistance to the large minority who are sexually active. The organizations can advocate in their communities, encouraging increased services and improved policies that help young women to plan their futures instead of drifting into them.

**Invest now, save later.** Investing in pregnancy prevention today means less money spent on economic assistance later. Early, unplanned pregnancy is enormously costly--a single pregnancy delayed beyond the teen years may save society \$8500 (Armstrong & Waszak, 1990). Youth organizations whose purpose is to enable girls and young women to succeed in an unequal world, Girls Incorporated is even more concerned with the costs of early sexual activity--unplanned pregnancy to young women--emotional distress and barriers to achieving educational, occupational and family goals. Preventing adolescent pregnancy makes economic--and common--sense.

Girls Incorporated Preventing Adolescent Pregnancy project shows promise that "what is being done is working" in enabling teen women to avoid pregnancy.

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## roduction

research shows promise that youth-serving organizations can help young women get through their teenage years without experiencing pregnancy. The Girls Incorporated (formerly Girls Clubs of America)<sup>1</sup> Preventing Adolescent Pregnancy study found that younger teens who participated in one of two developmentally appropriate program components were less likely to initiate sexual intercourse. Older teens who participated in one of two different program components were less likely to become pregnant than were their nonparticipating counterparts. "Dosage" was important in two of the programs especially emphasizing skills; it was important to participate in the entire program to have the desired effect on sexual behavior.

### What is the Preventing Adolescent Pregnancy project?

Teenage pregnancy is a significant social problem. One organization estimates that births that occurred when the mother was a teenager cost the taxpayers of the United States \$21 billion in 1987 (Armstrong & Waszak, 1990). Each year more than one million young women age 19 and under become pregnant (Henshaw, forthcoming). Of the teenage pregnancies conceived in 1987, 36 percent ended in abortions, 14 percent in miscarriages and 50 percent in live births (Forrest & Singh, 1990). Of great concern to Girls Incorporated and other organizations working with youth is that 82 percent of the pregnancies to teens in 1987 were unintended (Forrest & Singh, 1990). Thus, teen pregnancy is experienced as a problem by young women themselves.

Many young women are at risk of pregnancy. Under age 15 the majority of young women have never had sexual intercourse, yet even at this age 27 percent have had intercourse at least once and 13 percent are currently sexually active (Figure 1a). Through the teenage years the proportion of young women who have had intercourse increases significantly from year to year: 27 percent at age 15, 34 percent at age 16, 51 percent at age 17, and 70 percent at age 19 (National Center for Health Statistics, 1991). Among young women ages 15-19 a majority (60 percent) have had intercourse, 43 percent have had intercourse in the last three months and 12 percent have been pregnant (Figure 1b). Although the proportion of sexually active teens using contraception has increased in recent years, one-third of young women used no method of contraception the first time they had sex and in 1988 one in five sexually active young women were not using any form of birth control (Forrest & Singh, 1990). Among sexually active teens, those who were younger (Zabin, Hirsch, Smith, Streett & Hardy, 1986) and those with low incomes (Forrest & Singh, 1990) were less likely to use contraception.

### What is Girls Incorporated?

During the 1980s, schools and other youth-serving agencies were implementing and evaluating programs intended to decrease teenage pregnancy (reviewed in Hofferth, 1987 and Olson, 1988). Girls Incorporated already had considerable experience in both research-based programming, including program evaluation, and in family life education. Many Girls Incorporated members in more than 120 cities across the nation belonged to groups considered at high risk for teenage pregnancy, including low-income families, single-parent families, and minority racial/ethnic background.

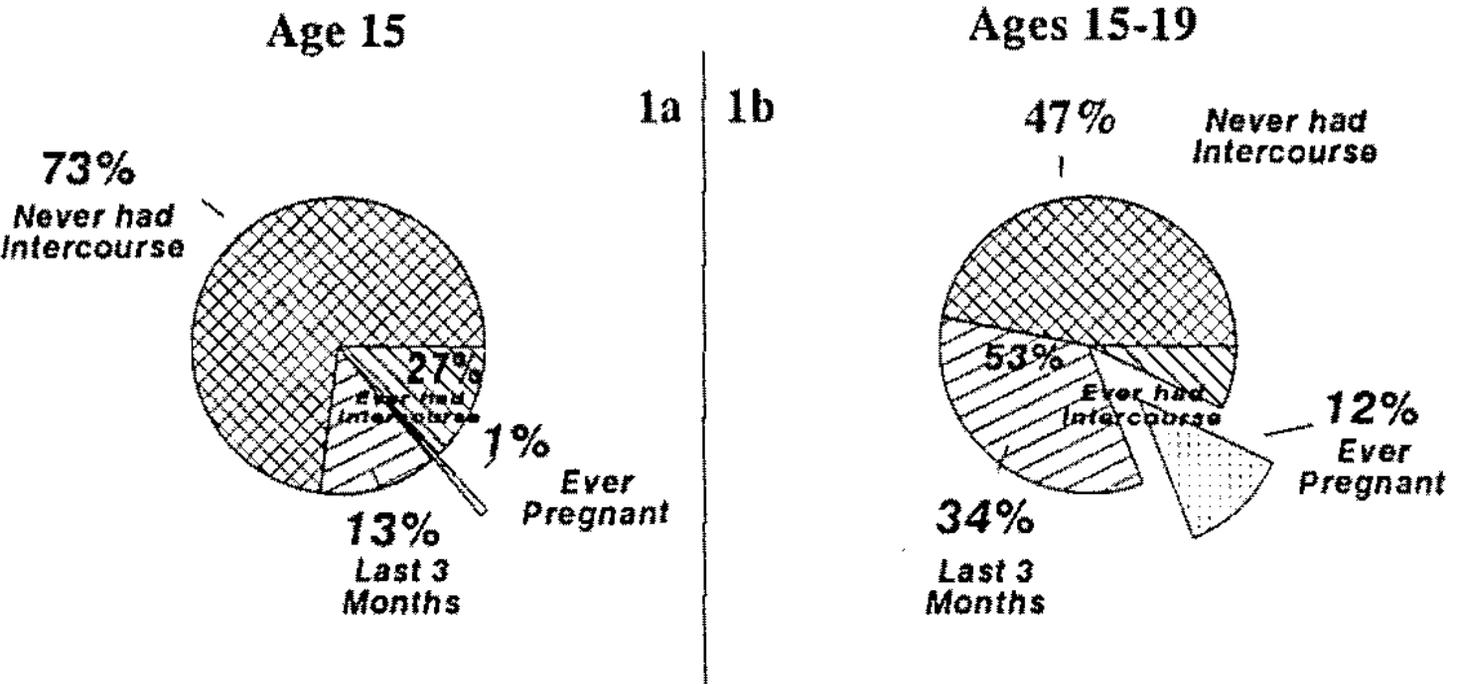
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April 1990 Girls Clubs of America changed its name to Girls Incorporated in order to reflect more strongly the organization's mission of preparing girls to achieve an economically independent, responsible and confident adulthood and to distinguish the organization more clearly from other national and local youth organizations with similar names. This report uses the new name Girls Incorporated for the national organization and participating affiliates.

# Figure 1, Sexual Behavior of Young Women

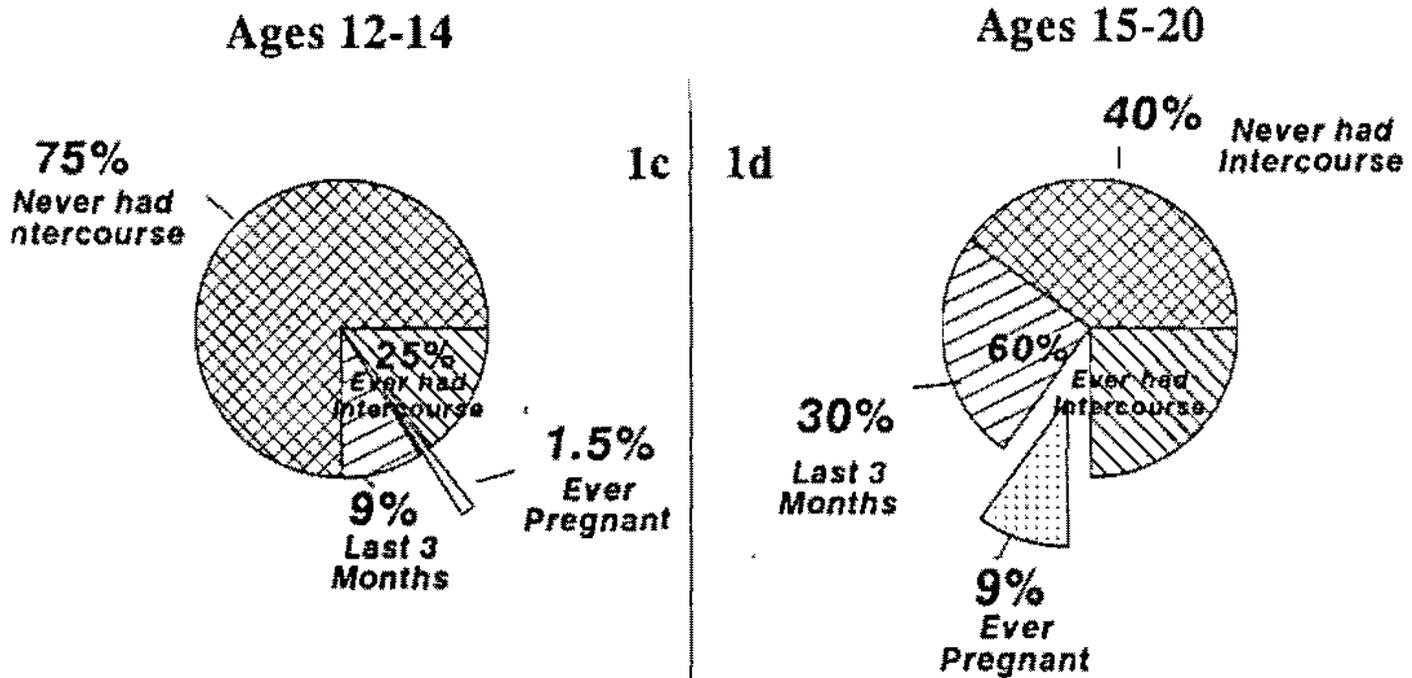
United States & Girls Incorporated Study

## United States 1988



Source: National Survey of Family Growth 1988

Girls Incorporated Preventing Adolescent Pregnancy Project 1985-1988



First Survey, Prior to any Program Participation

Affiliates' experience was that these young women themselves saw pregnancy as a problem. By 1981 the governing council of Girls Incorporated had adopted a policy statement endorsing age-appropriate sexuality education by schools and community organizations, in support of parents as the primary sex educators. The national organization instituted training to complement its nationally acclaimed publications on adolescent sexuality and parenting; several affiliates developed their own pregnancy prevention programs. By 1984, 83 percent of Girls Incorporated affiliates were providing some programs in sexuality education. Girls Incorporated also took national leadership in the policy arena on adolescent pregnancy prevention, participating in the Title X (family planning) coalition and informing others of the seriousness of the issues.

Girls Incorporated decided to develop and evaluate a comprehensive program to address the maze that girls and young women must negotiate to emerge from their teens without children of their own. As shown in Figure 1, the organization, working with four affiliates, successfully enlisted girls and young women at high risk of early pregnancy, whose participation served to refine the program and to study its effects. For example, as of their first survey, prior to any involvement in the study (Figure 1c), 25 percent of the girls ages 12-14 had had sexual intercourse at least once, 9 percent had had sex in the last four weeks and 1.5 percent had been pregnant, a profile similar to the considerably older national sample (Figure 1a). Among the older girls in the study (Figure 1d), most of whom were under age 17 (mean age 15.7 years), 60 percent had ever had sexual intercourse, 30 percent had had sex in the last four weeks and 9 percent had been pregnant, again a profile of risk similar to a national sample (Figure 1b) with an older mean age.

### **The comprehensive approach and program components**

Studies of knowledge-based sex education programs have shown that while participants learn much of the information presented, their learning does not carry over into a lower likelihood of sexual activity or greater use of contraception (Kirby, 1984). Girls Incorporated national staff, working with recognized experts on teenage pregnancy and sexuality education, designed a comprehensive approach providing factual information and skill-building exercises to enable girls and young women to make and implement responsible decisions about sex.

Recognizing that in today's society it is not easy or automatic for young women to avoid pregnancy until they finish high school, the approach was comprehensive and addressed the differing needs and levels of understanding of young women of different ages. The programmatic goal for girls ages 12-14 was the choice not to have sexual intercourse until they were older, so programs for these girls stressed skills in communication and in identifying and resisting pressures toward sexual activity. Young women ages 15-17 could participate in programs stressing life planning skills and health education and care. These programs shared two goals: to increase young women's motivation to avoid pregnancy until they made a responsible decision for motherhood and to give them the means to avoid pregnancy through the decision for abstinence or effective use of birth control. These program components were offered and evaluated in four Girls Incorporated affiliates serving communities where the teen pregnancy rate was higher than the national average. The four affiliates selected as demonstration sites were in Dallas, Memphis, Omaha, and Wilmington, Delaware.

### **Growing Together**

This program component provided a series of workshops in which 12- to 14-year-old girls and their mothers (less often, fathers, or other significant adults) practiced communicating about a variety of issues, particularly sex and sexuality. Many parents find it difficult to talk to their children about sex, whether providing information or discussing values (Alan Guttmacher Institute, 1981). In 1985, when Growing Together was developed, the weight of the literature indicated that girls who could talk with their parents, particularly their mothers, about sex

were less likely to be having intercourse (reviewed in Fox & Inazu, 1980 and McAnarney, 1982) and more likely to be using birth control if they did (Coles & Stokes, 1985). Although some later studies (Furstenberg, Hecceg-Baron, Shea & Webb, 1986; Treboux & Busch-Rossnagel, 1990) failed to find a similar connection, it was considered important to test Growing Together as a component of the comprehensive approach.

The program was implemented as five two-hour sessions led by a trained facilitator. The first session was for adults only, giving parents a chance to feel comfortable with the facilitator and each other and reassuring parents that they are competent to discuss sensitive issues related to sex and sexuality with their daughters. The remaining four sessions covered such topics as reproductive anatomy, physical and emotional aspects of puberty, accurate information about pregnancy and acceptable types of dating. Interactive exercises included role plays and discussions; depending on the exercise, parents and daughters participated as individuals or as parent-child(ren) teams as well as by family role in order to point out that differences in opinion are not always disagreements between parent and child.

### Will Power/Won't Power

This second program component for girls ages 12-14 focused on group-building, understanding relationships and practicing assertiveness skills. Expert opinion suggested a directive approach for these young teens, asserting that the participants are too young to be having sexual intercourse and guiding them to practice recognizing and resisting pressures to do so (Kirby, 1984; McAnarney, 1982). Studies published after Will Power/Won't Power was designed confirm that programs based on skill-building and social learning can help young teens decide to delay becoming sexually active (Howard & McCabe, 1990) or to avoid substance abuse (Ellickson & Bell, 1990).

The Will Power/Won't Power curriculum was delivered in six two-hour sessions. Activities included recognizing media and peer pressure to be sexually active through the use of films, videos and exercises, reasons to avoid early sexual activity, and discussion of physical affection and dating situations. Many of these situations, including resisting "lines" and other pressures to engage in sexual intercourse, were explored through role plays.

### Taking Care of Business

This program component for older teens ages 15-17 included career education and future planning as well as information on sexuality, reproduction and contraception. This approach was based on studies of young women from a variety of cultures and backgrounds indicating that those who see a bright future ahead, as evidenced by their aspirations and career goals, are less likely to experience pregnancy as teenagers than their peers whose aspirations and goals are lower (Chilman, 1980). As argued by researcher and program consultant Joy Dryfoos (1983), knowledge of how to prevent pregnancy is not enough; young women also need motivation to postpone pregnancy.

The version of the program now called Taking Care of Business used during the Preventing Adolescent Pregnancy study was based on Choices: A teen woman's journal for self-awareness and personal planning (Bingham, Edmondson & Stryker, 1983), a life options curriculum developed by the Girls Club of Santa Barbara. The nine two-hour sessions included such topics as sexual responsibility as defined by abstinence or consistent use of effective contraception, information on reproduction, birth control and sexually transmitted diseases, career planning and goal-setting, and communications and assertiveness skills. The most recent studies of similar life options programs (Allen, Hoggson & Philliber, 1990; Philliber & Allen, in press; Public/Private Ventures, 1987) agree that this approach is useful.

## Health Bridge

Health Bridge, the second component of the Preventing Adolescent Pregnancy project designed for older teens, coordinated health education, including information on reproduction and contraception, in Girls Incorporated centers with comprehensive health services in a neighborhood clinic. According to the Panel on Adolescent Pregnancy and Childbearing of the National Research Council, pregnancy is best prevented among sexually active teenagers by encouraging their consistent use of birth control methods and ensuring their access to contraceptives (Hayes, 1987). While the final verdict on the effectiveness of school clinics is still out, four school clinics prescribing birth control and providing contraceptives or access to them recorded over twice the percentage of student visits for reproductive health care as did two school clinics only providing contraceptive counseling (Kirby, Waszak & Ziegler, 1991). Zabin found that sexually active junior high school students in Baltimore increased their use of birth control methods when a readily accessible storefront clinic was established as part of a comprehensive program (Zabin et al., 1986).

The design of Health Bridge combined the features of school-based and neighborhood clinics found to be most important in preventing adolescent pregnancy: ongoing health education and case management provided by a nurse from the bridging clinic, with the attendant opportunity for building a trust relationship; comprehensive health services, so that making use of the clinic was not tantamount to announcing contraceptive or reproductive health concerns; and accessibility, allowing participants to attend educational sessions and make fullest use of the available health services. Financial and logistical difficulties in implementing Health Bridge meant that this program component could not always be implemented exactly as designed. Health Bridge was implemented for between one and two and a half years at each demonstration site.

## Study design

The field research for the Preventing Adolescent Pregnancy project ran from October 1985 to October 1988. During the three project years, each site recruited as many girls and young women currently between the ages of 12 and 17 as possible as project participants. Project participants were encouraged but not required to enroll in program components for which they were eligible by age. Those who did become the experimental group. Project participants who did not enroll in any of the program components served as the control group. All project participants, regardless of program participation, were asked to complete an annual survey in October of each program year and at the end of the program. This survey collected background data on participants and asked about their attitudes toward teenage pregnancy, their educational and career goals and expectations, their sexual experience and their use of birth control methods. Young women who turned 18 during the course of the project were encouraged to continue their participation by completing the same annual survey as younger participants and an additional part asking about educational and job experience, marital status and numbers of pregnancies and births. The analysis of data was based on those young women who completed at least two consecutive annual surveys--that is young women for whom there "before" and "after" information on sexual behavior for one year, with (participants) or without participation (nonparticipants) in one or more program components during that year.

Project participants chose whether or not to enroll in program components, rather than being randomly assigned to experimental and control groups. One might suspect that teen women who enrolled in program components differed from those who did not enroll in ways that meant they were less likely to become pregnant as teenagers regardless of participation. In order to test for this possible self-selection bias, the annual survey collected information on background characteristics--age, race/ethnicity, mother's education, family structure and sources of

mic average, educational expectation, being the child, sister or friend of a  
r and previous sexual activity--which previous studies had found to be associated  
enage pregnancy.

### s--participants and nonparticipants

for measuring the effectiveness of Growing Together and Will Power/Won't  
s who had ever had intercourse were excluded, since this was the outcome  
erest. The girls were young, with 11 percent not yet having turned 12 at their  
5 percent age 12 and 34 percent age 13 or 14. About 75 percent of the girls  
American and 25 percent were white, Latina or of other racial or ethnic groups.  
83 percent, were Protestant or of other religions and 17 percent were Catholic.  
group one-third (36%) reported living in a household with a father, three-fifths  
thers who had completed high school and one-fourth (24%) reported welfare as  
nily income. The mothers of 37 percent of these girls had been pregnant before  
percent of the girls had girlfriends who had been pregnant before age 18. There  
who were subjects in the research project for one year, at any time during the  
t programs were offered in the study, and who had never had intercourse at their  
f these girls, 257 participated in Will Power/Won't Power and 84 participated  
gether, including 46 who participated in both components: 117 participated in  
ent.

measuring the effectiveness of Taking Care of Business and Health Bridge the  
who had had intercourse were included but those who had been pregnant were  
: this was the outcome of greatest interest. The average (mean) age was 15.4  
nt were African American with 16 percent white, Latina or of other racial or  
unds; 90 percent were Protestant or other religions and 10 percent were  
is older group 29 percent were living in a household with a father, 62 percent  
ho had completed high school and 27 percent reported welfare as a source of  
. The mothers of 45 percent of the young women had been pregnant before age  
riends of 85 percent of them. The sample for testing the effectiveness of  
Business comprised 343 young women ages 14-20 who took part in the  
t for one year and had never been pregnant prior to their first survey; of these,  
d in Taking Care of Business and the 178 who did not participate became the  
up. In the sample to test Health Bridge there were 359 young women; 89 be-  
its and 270 were nonparticipants.

the comprehensive approach involving all four components the sample consisted  
1 young women ages 12 to 15 when the study began who had completed three  
ual surveys and had never been pregnant prior to the first survey. Among the  
rticipants, 133 participated in one component, 104 in two or more components;  
en did not participate in any component and became the comparison group.

aracteristics of participants in each program component were generally found to  
ose of nonparticipants in the same age group. The only program component for  
s evidence of possible self-selection bias was Growing Together; girls enrolled  
component were significantly different from nonparticipants in several back-  
ristics associated with less likelihood of being sexually active, a finding con-  
nt for the design of future parent-daughter programs. The differences were  
trolled in data analyses. In the case of Will Power/Won't Power and Taking  
is, a further comparison was made after dividing the experimental group into  
participated for the average number of hours or more and those who had par-  
an the average number of hours. Two significant differences were found be-  
ng Care of Business groups, but both indicated that program nonparticipants  
t less risk of teenage pregnancy than were program participants, contrary to the

self-selection bias. Comparisons of project subjects who enrolled in no program, one program component and in two or more program components found no differences in background characteristics between these groups.

Program components of the Preventing Adolescent Pregnancy project show promise in their goals of postponing first sexual intercourse for younger participants and reducing the likelihood of pregnancy among older participants. "Dosage" seems to be important in programs focusing on skill development, Will Power/Won't Power and Taking Care of Business; the teen women who participated in these programs for more than the minimum number of hours were the most likely to achieve program goals. Participation in one or more program components also seems to increase participants' probability of avoiding pregnancy.

Otherwise, the results reported here are statistically significant at the .10 level or better, such a difference between participants and nonparticipants, or between long-term participants, would occur by chance 10 times or fewer in 100.

### Other

Girls who participated in Growing Together were less than half as likely as their peers who did not to have sexual intercourse for the first time. As shown in Figure 2, Growing Together participants were more likely than nonparticipants to continue to delay having sexual intercourse until they were older. This was true independent of the number of hours girls participated in the program component.

### Will Power/Won't Power

Program "dosage" makes a difference, the girls in the Will Power/Won't Power study were divided into three groups for analysis--girls who participated in Will Power/Won't Power for one or more hours, girls who participated for one to nine hours, and nonparticipants (0 hours). Girls who participated in nearly the entire program (10 or more hours) were the most likely to delay having sexual intercourse for the first time--only half as likely as nonparticipants (Figure 3). Figure 3 also shows that the girls who participated in nearly the entire program were only one-third as likely as girls who participated for a shorter time to have sexual intercourse for the first time. The apparent difference between short-term participants and nonparticipants should be viewed very cautiously since it was not a statistically significant difference. If it is, the difference might well have occurred by chance. If this difference is not, it may be that special attention must be paid to retaining teens who seem less committed to the program, or that young teens who are more interested in sexuality--for example, those who are more likely to sign up for a program than their peers for whom decision-making about sexual behavior is less immediate. As we explore the data further through longitudinal research, the extent to which the nonparticipant/short-term participant difference is likely to become clearer. The effects that are statistically significant suggest that participation in the program is associated with delay in first intercourse.

### Care of Business

To assess the question of "dosage"--whether the amount of involvement in the program affects its effectiveness--the subjects for the study of Taking Care of Business were divided into three groups: young women who participated for 13 or more hours, those who participated for 1 to 12 hours, and nonparticipants (0 hours). Young women who participated in the entire program (13 or more hours) were about half as likely as nonparticipants to have sex without a condom (Figure 4). Those who participated for the entire program were only one-third as

Figure 2  
Likelihood of having sexual intercourse  
for the first time: Participants in  
Growing Together vs. nonparticipants

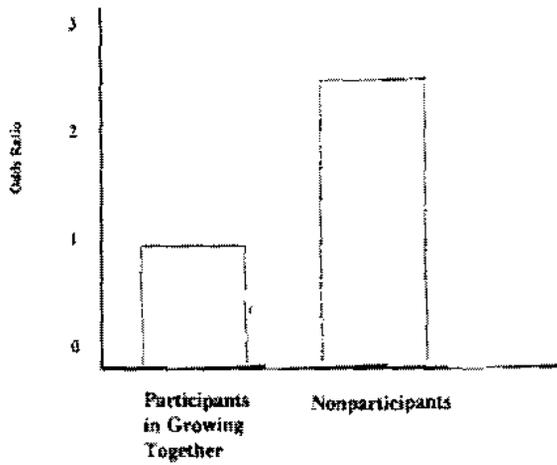
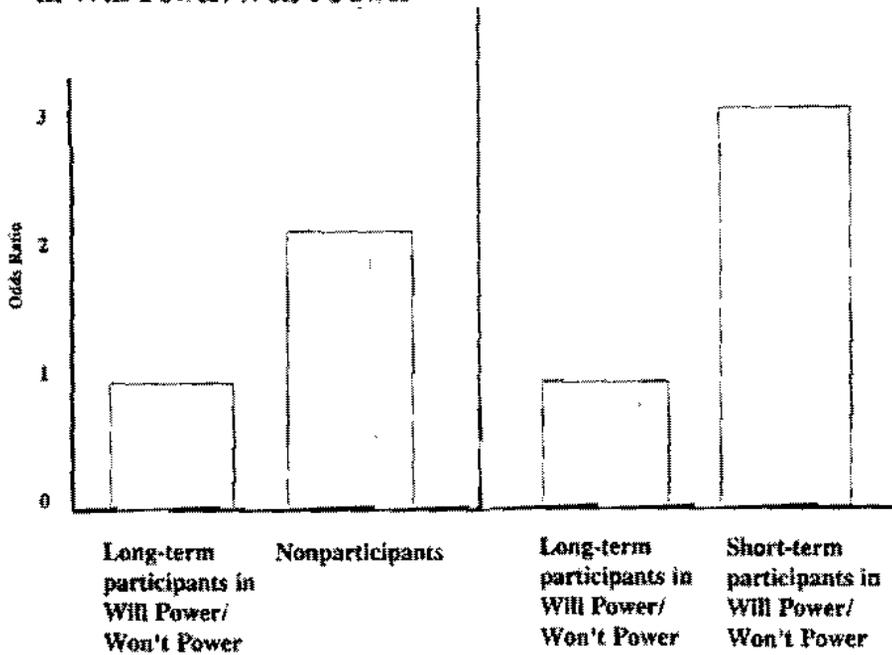
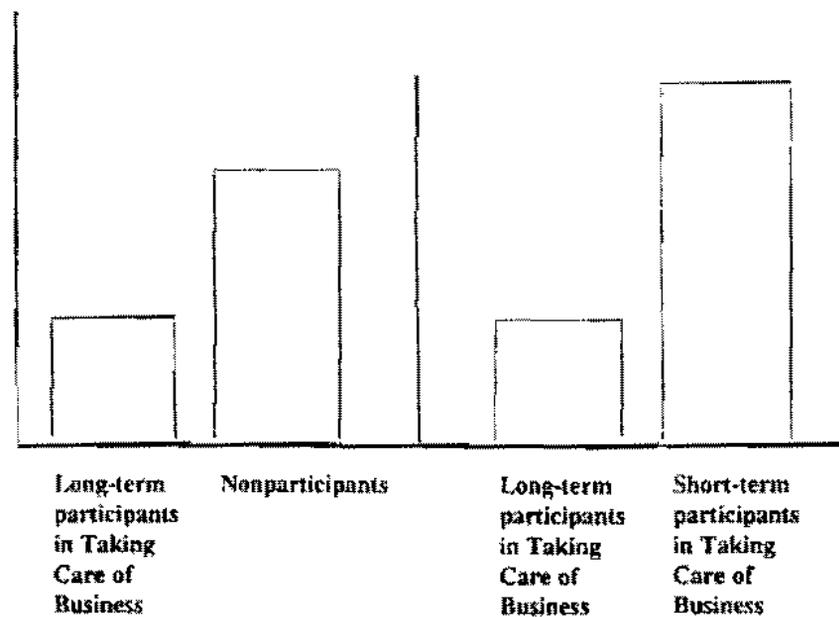


Figure 3  
Likelihood of having sexual intercourse for the  
first time: Long-term participants vs. nonparticipants  
and long-term participants vs. short-term participants  
in Will Power/Won't Power



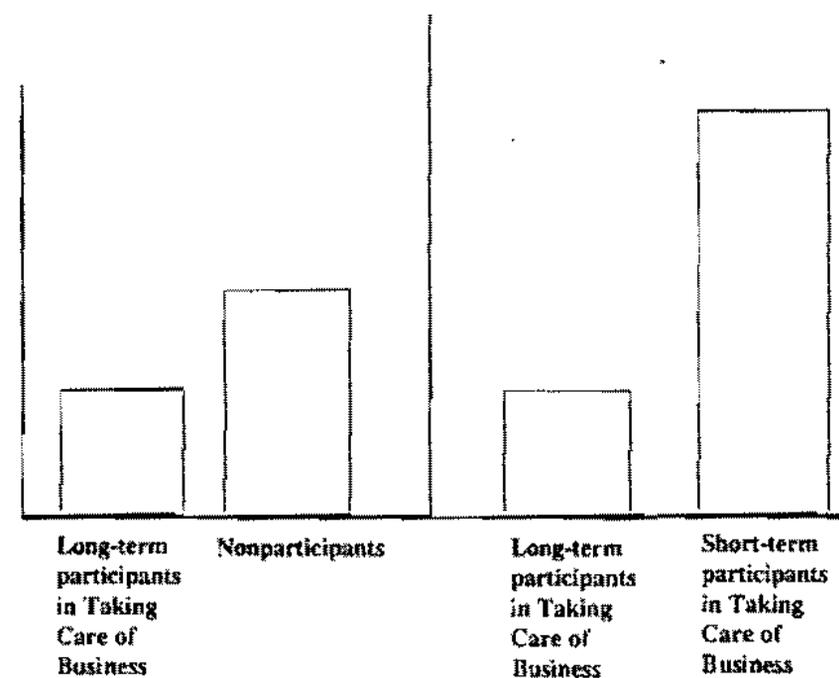
*The difference between nonparticipants and short-term participants is not statistically significant.*

Figure 4  
 Likelihood of having sexual intercourse without birth control: Long-term participants vs. nonparticipants and long-term participants vs. short-term participants in Taking Care of Business



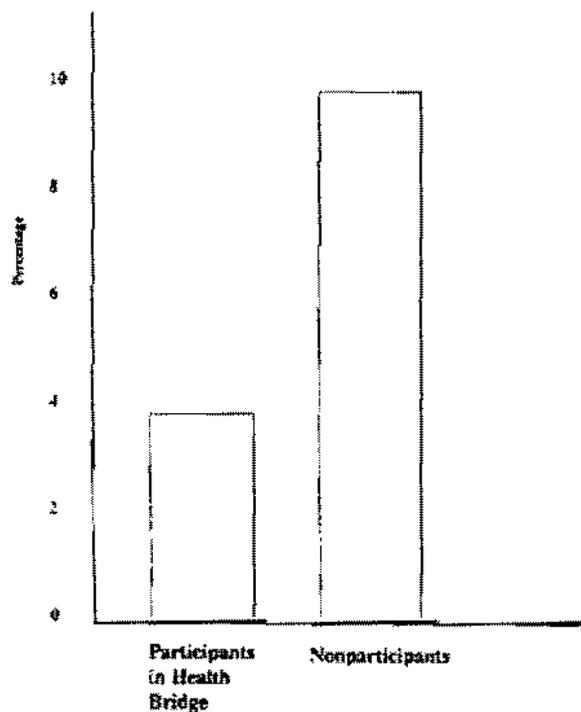
*The difference between nonparticipants and short-term participants is not statistically significant.*

Figure 5  
 Likelihood of becoming pregnant: Long-term participants vs. nonparticipants and long-term participants vs. short-term participants in Taking Care of Business



*The differences between nonparticipants and long-term participants, and between nonparticipants and short-term participants, are not statistically significant.*

Figure 6  
 Percentage of young women who experienced pregnancy: Participants in Health Bridge vs. nonparticipants



likely as their peers who participated less than 13 hours to have sex without using contraception. Again the apparent difference between the nonparticipants and the short-term participants was not statistically significant and could well have occurred by chance. If the difference is "real," it may signal the importance of making programs for older teens attractive and convenient enough to retain their full participation, or the need to back up educational programs with reproductive health services, such as the Health Bridge. The effects that are statistically significant suggest that participation in the full program is associated with greater likelihood of using contraception.

As shown in Figure 5, these more consistent participants in Taking Care of Business were somewhat (but not significantly) less likely than nonparticipants and one-third as likely as the short-term participants to become pregnant. The statistically significant results suggest the importance of participation in the entire program.

### Health Bridge

Young women who participated in Health Bridge reported one-third the incidence of sex without using contraception compared to their peers who did not participate. Health Bridge participants were also less than half as likely to become pregnant as nonparticipants (Figure 6).

### Comprehensive participation

Teen women who participated in one or more of the program components during a two-year period were less than half as likely as nonparticipants to become pregnant. Project participants as a group and when divided by participation in one or more than one program component were not notably more likely than nonparticipants to use contraception at last sexual intercourse. This result is puzzling and contrary to expectation.

### **Discussion**

Virtually all of the analysis of data collected in the Preventing Adolescent Pregnancy study suggests that each program component is effective in preventing adolescent pregnancy. In two programs length of participation was crucial to program effectiveness. We conjecture that for girls enrolled in Will Power/Won't Power greater length of participation allows more practice of communication and assertiveness skills and may also reflect stronger commitment to the program's goals. Similar factors may also be operating in Taking Care of Business, which emphasizes decision-making skills. Length of participation proved less crucial in the other two program components. Growing Together also involves practicing skills, in this case communication, but the relationship between the participant and a trusted adult seems less subject to quantity than quality of time invested. In Health Bridge, again, establishing a relationship with a nurse or other caring adult and feeling connected to a comprehensive clinic as a means to using effective birth control may not take a specific number of hours or sessions.

Though self-selection bias would be suspected when participants chose to enroll or not in program components, analysis of background characteristics showed no evidence of self-selection bias in the study population as a whole or in the experimental and control groups for three of the program components. Participants in Growing Together were significantly different from nonparticipants of the same ages. White and Latina girls were more likely than African American girls, and Catholic girls more likely than Protestant girls, to participate in Growing Together. These factors were controlled in the analysis but the difference between participants and nonparticipants may account for some of the apparent effectiveness of this one program component.

Growing Together in its published version has been adapted for younger girls, ages 9-11. This change to a younger age group is intended to help girls and their parents establish good communication and discuss values and information concerning sex and sexuality so that they can continue to do so as the girls negotiate the personal and social challenges of adolescence. Although the resulting program has not been studied, the hope is that girls and their parents from all backgrounds will find parent-daughter workshops more appealing when the girls are younger.

The age range for Health Bridge has been expanded in the published version to include girls from age 12 on, responding both to the fact that some girls this young were having intercourse and to the experience of the demonstration sites that younger girls were eager to listen to and talk with Health Bridge nurses.

### **Recommendations**

The promising findings from the Girls Incorporated study have implications for adults working with girls and young women in other settings, and for funders and policy makers concerned with youth.

#### **Start early and stay late:**

Sexuality education needs to start as early as age 9 and last through age 17 or 18. Both the literature on sexuality education and our experience in the study recommend that sexuality education should begin by at least the fourth grade, or age 9. About one-fourth of girls have had sexual intercourse by age 15, too many of them by age 12 or 13. The proportion who are sexually experienced and active increases rapidly each year after 15, although there is still a substantial minority of teens age 17 and 18 who deserve support for the decision not to have sexual intercourse.

The barrage of messages about sexuality in our culture leaves girls and young women understandably confused. Should they believe the advertisers of jeans and beer? Parents or religious leaders? Older teens or close friends when making decisions about sex? A peremptory "just say 'No'" fails to take account of the developing strengths and needs of girls. By age nine girls need to know about their developing bodies and share their concerns about sexuality with caring and sensible adults. As they get older they should have help sorting through the mixed messages, acquiring a firm belief that it is their right not to have sexual intercourse and the skills to make the decision stick without becoming social outcasts. While they are still in junior high or high school young women need to learn to plan their own lives and have the skills and adult support to decide if and when children might be part of the picture. Whatever adults would wish for them, many young women do become sexually active while in their teens and they require the information and resources to prevent pregnancy and sexually transmitted disease in order to pursue their own educational, occupational and family goals. To be helpful, interventions to prevent adolescent pregnancy must respond to the issues young women are confronting--they must start early in a girl's life and stay late as she takes increasing responsibility for her well-being.

#### **The more the better:**

"Dosage" can be important to effectiveness. It takes time to develop skills, to think through values and to establish a group of peers who make decisions about sexuality carefully, so programs may need to last several sessions over several weeks. Program developers need to pay as much attention to retention as recruitment. Programs should address real problems of teens to sustain their interest. Another aspect of "the more the better" is that pregnancy prevention is not "finished" when a given program is over. Although we cannot prove it from this study alone, the chances are that teens who receive consistent messages and reliable adult support at home, school and community organizations are more likely to prevent pregnancy successfully.

### **Truth, trust and technology are the keys to responsible behavior:**

For most young women, particularly for young teens, responsible behavior means deciding not to have sex until they are older. Realistically, however, there will always be some teen women who are sexually active. Every young woman needs and deserves information (truth), support (trust) and skills and resources, including access to contraception when she needs it (technology). These are the keys that enable a young woman to have the confidence to keep saying "No" and making it stick or to insist upon contraception until she makes a responsible decision to become a mother. Thus, society shares responsibility with young women to see that they have access to the services they need.

### **Youth organizations and other community groups have a significant role to play in reducing teen pregnancy:**

The prevalence of pregnancy among Girls Incorporated members (and presumably among members of other youth organizations) implies that girls who become pregnant are not necessarily uninvolved and isolated. The Girls Incorporated Preventing Adolescent Pregnancy study shows that organizations already trusted by parents and children can help young women learn the information and skills they need to make responsible decisions in the context of family and community values. They can provide both a support system for the majority of young women who are not sexually active but may feel as if "everybody's doing it" and nonjudgmental assistance to the large minority who are sexually active. Organizations can be advocates in their communities, encouraging increased services and improved policies that help all young women to plan their futures instead of drifting into them.

### **Spend now, save later:**

Investing in pregnancy prevention today means less money spent on economic assistance later. Early, unplanned pregnancy is enormously costly. One organization estimates that teen pregnancies cost society \$21.55 billion in 1989 (Armstrong and Waszak, 1990) and that the potential savings to society for a single pregnancy delayed beyond the teen years is more than \$8500. As an organization whose purpose is to help girls and young women succeed in an inequitable world, Girls Incorporated is even more concerned with the costs of early sexual activity and teenage pregnancy to young women. Teenage pregnancy is a risk factor for future unplanned pregnancies (Sornstein, Hilton & Montoya, 1985). Teenage motherhood makes it difficult to complete one's education and locks many young women into low-paying jobs (Hayes, 1987; Youth and America's Future, 1988). Both government and private funders must begin making the fiscally prudent and humane decision to increase funding for sex education and reproductive health care, including contraceptive services. Preventing adolescent pregnancy makes economic--and human--sense.

→ what cost of indiv. pregnancy?

Preliminary estimates indicate that offering all four components of the Girls Incorporated Preventing Adolescent Pregnancy program to one girl costs about \$1200. Participation in this program can not only help teen women to postpone pregnancy until they are ready for motherhood, but to acquire skills and confidence that will help them be more responsible adults, with a secure future for themselves and their families.

### **Preventing Adolescent Pregnancy in action**

Enthusiasm for all four program components at the demonstration sites was high, and local staff members believed that the programs were helping Girls Incorporated members acquire the knowledge, skills and motivation to delay becoming sexually active or pregnant. Their experiences and early evaluations led to publication of program curricula, revised in light of three years of implementation, in 1988 and training of Girls Incorporated staff at any interested affiliate to offer the program components as soon as the experimental phase of the project ended. In 1990, 62 affiliates offered at least one program component to over 6500 girls and

young women. As Girls Incorporated staff continue to analyze data collected in the Preventing Adolescent Pregnancy project and affiliates continue to evaluate their experiences in offering the program components, further studies will be published and new revisions may be adopted.

Recruitment for Growing Together has proved difficult less because of parent reticence than in light of realities of family life, especially as many Girls Incorporated members live in single-parent families. Providing transportation to and from sessions, a snack or light meal and child care for younger siblings have proven helpful in allowing parents and daughters to participate. As explained above, the program has been revised for 9- to 11-year-olds and their parents.

Will Power/Won't Power is the most readily implemented program component for most youth organizations. Girls enjoy the activities and skill practice. Materials are inexpensive and easy to obtain, and often staff have the small-group, interactive skills the program requires.

In the revision of the program, assertiveness and peer support (as opposed to peer pressure) are further emphasized. Participants are encouraged to form a sorority supporting each other in the decision to wait until they are older to have sex. Girls are given more practice in assertiveness skills and more guidance in declining sexual activity, particularly for those girls who have previously had sexual intercourse.

The published version of Taking Care of Business concentrates less on careers and more on issues of and information about sex and sexuality while preserving its emphasis on life-planning skills. As older teens have many competing obligations, this program proved most successful when offered as part of a youth employment or career exploration program. Peer educators, particularly college students, are recommended as program facilitators.

Health Bridge is the most expensive and most difficult program to implement. It is, however, greatly needed by many young women who do not otherwise have access to health care which can provide the services they need affordably and nonjudgmentally. Younger teens were eager to participate and more willing to admit ignorance or to ask for advice; the program is now recommended for teen women ages 12-18.

The results of the study are promising if not overwhelming evidence that programs emphasizing truth, trust and technology can help girls and young women at high risk avoid pregnancy during their teen years. Girls Incorporated recommends strongly that affiliates implement the entire comprehensive program and urges schools and other community organizations to support all adolescents in making responsible decisions about their sexual behavior.

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**Preventing Adolescent Problem Behaviors**

1.

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**Programmatic Prevention of Adolescent Problem Behaviors:  
The Role of Autonomy, Relatedness, and Volunteer Service  
in the Teen Outreach Program**

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**Association of Junior Leagues International**

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**Running Head: PREVENTING ADOLESCENT PROBLEM BEHAVIORS**

## Preventing Adolescent Problem Behaviors

2.

### Abstract

The mechanisms by which a well-validated intervention to prevent school failure, suspension, and teenage pregnancy produces its effects were explored using site-level data from 123 sites involving over 1,800 students participating in national replication of the Teen Outreach Program. Multiple informants provided data on operating characteristics of each site. These were then used to explain differences across sites in levels of success in reducing youth problem behaviors using a pre-post design and a well-matched comparison group. In accord with predictions from developmental research, sites that promoted student autonomy and relatedness with peers and with site facilitators achieved significantly greater levels of success in reducing problem behaviors. Offering volunteer experiences that challenged students and left them feeling proud was also linked to program success. Although the program was equally successful with students from a wide range of socio-demographic backgrounds, links of program factors to outcomes were most apparent for younger students. Implications of these findings for the development of programmatic interventions targeted at adolescents are discussed.

## Preventing Adolescent Problem Behaviors

3.

### **Programmatic Prevention of Adolescent Problem Behaviors: The Role of Autonomy, Relatedness, and Volunteer Service in the Teen Outreach Program**

Adolescent problem behaviors such as teenage pregnancy, school failure, and school dropout result in enormous costs each year both to individual adolescents and to the larger society (Burt, 1986; Carnegie Council on Adolescent Development, 1989; Dryfoos, 1990; Huesmann, Eron, Lefkowitz & Walder, 1984; Loeber, 1983). Efforts are now increasing to prevent these problems, often via large-scale, school-based interventions (Dryfoos, 1990). Yet, recent evidence suggests mixed results to date, with some programs showing signs of real success and others with less clear outcomes (Conduct Problems Prevention Research Group, 1992; Dryfoos, 1990; Philliber & Allen, 1992). As prevention efforts multiply, there is a need for research that examines not just program outcomes, but also the processes by which programs produce change in participants (Allen, Philliber, & Hoggson, 1990; Gray & Braddy, 1988). Such knowledge is needed both to guide the inevitable processes of adaptation that occur when replicating promising programs on a large scale (Bauman, Stein, & Ireys, 1991; Blakely et al., 1987), and to begin to develop a technology for intervening to prevent serious adolescent behavior problems.

Optimally, such research should also be linked to an understanding of the social development of adolescents who are being targeted for intervention. Developmental risk research suggests that the most effective interventions will be targeted toward helping individuals meet the critical tasks of a given era of development (Sroufe, 1992). Recent research on adolescent development suggests that a critical task of social development is establishing autonomy in social interactions *while maintaining* a sense of relatedness with

## Preventing Adolescent Problem Behaviors

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important others (Allen, Hauser, Bell, & O'Connor, in press; Collins, 1990; Grotevant & Cooper, 1985; Hill & Holmbeck, 1986; Moore, 1987; Steinberg, 1990). When adolescents are unable to effectively manage this task, numerous problematic outcomes result (Allen et al., in press; Steinberg, 1990). Several existing efforts to prevent problem behaviors might be seen as, in part, acting by promoting adolescents' sense of autonomy and relatedness in social interactions (Conduct Problems Prevention Research Group, 1992). Yet, this developmental perspective has received only scant empirical attention in studies of preventive interventions.

The present study used this developmental perspective to examine a program with documented effectiveness in reducing problem behaviors, the Teen Outreach Program, sponsored by the Association of Junior Leagues International. The Teen Outreach Program has been identified by the National Research Council of the National Academy of Sciences (1987) in an extensive review of teen pregnancy prevention programs as representing one of only three approaches with documented effectiveness in reducing teenage pregnancies. Seven consecutive years of data on the program, involving over 6,000 Teen Outreach and comparison students, have indicated that it reduces teenage pregnancy and school failure and dropout rates by approximately 15 to 50 percent relative to matched comparison groups of students (Philliber & Allen, 1992). Recently, a random assignment control group strategy has been implemented at a subset of participating sites. Preliminary findings suggest that use of random assignment vs. matched-comparison group designs was not related to the magnitude of reported program effect (i.e. prior findings do not appear to have resulted from inflation of effects in non-random assignment designs) (Philliber & Allen, 1993).

Teen Outreach is a school-based program that involves young people in volunteer

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service in their communities. The program links this volunteer work to classroom-based, curriculum-guided group discussions on a wide range of issues, from family conflict to human growth and development. This combination of volunteer work and classroom discussion clearly has the potential to enhance students' sense of autonomy while maintaining a sense of relatedness by placing them in a help-giving (as opposed to help-receiving) role (Allen et al., 1990; Rappaport, 1987; Riessman, 1965). Because of its positive outcome data and its relatively uncontroversial focus upon promoting adolescent development, the program has grown over the past decade to the point where it has served over 4,000 students and is now implemented in more than 130 sites nationally.

Previous research on Teen Outreach has identified participation in its volunteer service component as one ingredient linked to its success (Allen et al., 1990). In addition, the program has appeared to be more effective with high-school age than with middle-school age students. Structural features of the program, such as use of specific parts of the curriculum, and implementation of the program during vs. after school, have been examined, but have not been related to its success in prior analyses (Allen et al., 1990). Yet, other than findings about the potential importance of performing volunteer community service, and targeting older students, little information has been available about the processes by which this intervention might produce its effects.

One limit to prior evaluations was that no data were collected on either student or program facilitator impressions of the social and interactional qualities of the program as it was implemented at a given site. Thus, while we might hypothesize that programs such as Teen Outreach function by supporting adolescents' developmental strivings for autonomy and relatedness, this hypothesis has yet to receive empirical scrutiny.

Similarly, assessment of the conditions under which volunteer work is linked to success in

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preventing teen problem behaviors has not yet been reported. As national interest has grown in volunteer community service for youth (Moore & Allen, 1993), understanding the conditions under which such service is beneficial becomes increasingly important.

A second limit to prior research was that all analyses in prior evaluations were conducted at the level of the individual student (due to the small number of sites available), even though conclusions about links between site-level characteristics and site-level outcomes should truly only be drawn from site-level analyses. Finally, although prior research revealed no effects for demographic characteristics of students other than for age, the question of whether a program works well with particular groups of students remains important to consider. For example, one might reasonably ask: Does this program work as well with poor students and students from racial/ethnic minority groups as with other students?

This study utilized site-level data from 123 different implementations of Teen Outreach around the country involving 3,600 Teen Outreach and comparison students who participated in the program. Our goal was to focus on critical tasks of adolescent social development in an attempt to identify factors that would explain the differing *relative* effectiveness of Teen Outreach programs at different sites. Specifically, we examined: a) whether the success of specific Teen Outreach sites was linked to the degree to which they were seen by students and facilitators as supporting students' need for a sense of autonomy and relatedness within the program; and, b) whether specific features of the volunteer community service that students' performed were linked to program success. Student socio-demographic characteristics were also considered in all analyses to assess whether they might serve as plausible alternative explanations for its effectiveness at various sites. Because it is impossible to randomly assign students to

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different sites of a national program to examine *intra*-program differences, an analytic framework was used to relate site-level characteristics to site-level outcomes while assessing and accounting for multiple potential confounding factors (Allen et al., 1990). Potential confounding factors assessed included overall sample cohort effects, school-wide cohort effects and student motivational biases that might influence the results at any given site.

### Method

#### Settings

This study was embedded within a larger evaluation that employed a quasi-experimental design involving Teen Outreach students and a comparison group of students closely matched on various background characteristics (Philliber & Allen, 1992). Relevant characteristics of the Teen Outreach Program were evaluated at 123 different sites nationwide from 1987 through 1992. The program was a collaborative effort between The Association of Junior Leagues International, Inc., local Junior Leagues, and local school districts around the country. Teen Outreach participants, who were in grades 7 through 12, engage in a range of volunteer activities provided to them by their facilitators, working in conjunction with volunteers of local Junior Leagues. Volunteer activities were developed to be sensitive to the needs and capacities of local communities, and thus varied substantially in their nature, and in the amount of commitment they required of students. Volunteer activities included: work as aides in hospitals and nursing homes, participation in walkathons, peer tutoring, and a wide range of other types of work.

Students also participated in ongoing classroom-based discussions that occurred at least once weekly throughout an academic year. Classroom discussions are based upon

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the Teen Outreach Curriculum (Association of Junior Leagues International, 1993), which utilizes techniques for engaging students in discussions, group exercises, films, and informational presentations. The primary emphasis of the curriculum is the promotion of meaningful discussions of developmental tasks faced by adolescents. Topic areas included: understanding yourself and your values, communication skills, dealing with family stress, human growth and development, and issues related to parenting. Classroom discussions were led by trained facilitators, who were often school teachers or guidance personnel.

Although all Teen Outreach sites share the common features described above, there is also significant diversity among programs around the country in terms of how different aspects of the program are implemented and in the populations of students served. These variations were the basis for analyses described below.

### Participants

Participants in the study included 1,849 students who participated in the Teen Outreach Program and 1,765 comparison students. Students ranged in age from 11 to 19 years and in grade level from 7th to 12th grade. Students entered the program through a variety of means: some as part of their "health" curricula; some as an academic elective; some via teacher/guidance counselor encouragement; and in some sites, the program recruits students to after-school implementations. These entry criteria are no longer closely monitored as prior analyses have shown them to be unrelated to program outcomes (Allen et al., 1990). A small number of participants (approximately 7%) had been previously involved with the Teen Outreach Program.

Comparison/control students were selected in one of three ways. Either Teen Outreach students nominated other students whom they guessed "would fill out the entry

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questionnaire about the same way [they] did," or school personnel matched classrooms of students participating in Teen Outreach to similar non-participating classrooms, or, when program enrollment was oversubscribed, students were randomly selected to participate. Attrition over the course of the study, as a result of student dropout from the program or from school, or from failure to complete exit questionnaires was 6.9% among Teen Outreach students and 9.9% among comparison students . Incomplete exit data were obtained for an additional 1 % of students in both groups; these were also excluded from analyses. Attrition accounted for more than 1% of the variance in only one student characteristic, racial/ethnic minority group status. Twenty-four percent of minority group students did not complete exit data as compared with 15% of non-minority students. However, examination of whether *differential* attrition occurred in the Teen Outreach vs. Comparison groups revealed no effects accounting for more than 1/2 of 1% of the variance in measures examined.

Information on the demographic characteristics of both Teen Outreach and Comparison students for whom entry and exit data were available is presented in Table 1. These data indicate that the samples were extremely well-matched at entry demographically, with only a small effect for the Teen Outreach sample to be slightly younger and to have a slightly higher proportion of females than the comparison sample

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Insert Table 1 about here.

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### Measures

Demographic Characteristics. Students filled out a brief self-report questionnaire

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indicating their age, grade level in school, race, predominant household composition (1- vs. 2-parent) and parents' education levels (1 - not a high school graduate; 2 - H.S. graduate; 3 - some college; 4 - college graduate).

**Problem Behaviors.** Self-report questionnaires were used to assess students' problem behaviors. When sensitively collected, anonymous self-report instruments have been found to be among the *least* biased means of assessing adolescent problem behaviors such as teenage pregnancy, with substantial evidence available to support their overall reliability and validity (Elliott & Ageton, 1980; Farrington, 1973; Patterson & Stouthamer-Loeber, 1984). At entry, we asked students: (1) whether they had ever been pregnant (females) or caused a pregnancy (males); (2) Whether they had failed any courses during the prior year at school; and, (3) whether they had been suspended in the prior year at school. At exit we asked the same questions of students (except that the pregnancy question was modified to refer only to the academic year of the program). The incidence of each of these three problem behaviors was summed to yield a problem behavior score for each student. This approach was taken for *a priori* theoretical reasons, based upon research suggesting that problem behaviors comprise a meaningful syndrome of problematic behavior (Donovan & Jessor 1985; Donovan, Jessor & Costa, 1988; Leadbeater, Hellner, Allen & Aber, 1989). This approach was supported by findings of maximum likelihood factor analysis that one factor was sufficient to explain the variance among these problem behaviors. Results presented below were found not to differ if problem behaviors were examined separately.

**Program Implementation.** Variations in the implementation of Teen Outreach at different sites were assessed using questionnaires presented to both participants and facilitators during the final month of the program.

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"Intensity" measures consisted of facilitators' reports of the number of *volunteer hours* worked by participating adolescents as well as the number of *group discussion hours* for each student. Data regarding individual students was then summed and averaged to arrive at a site-level score for each of these measures, which was then used in further analyses. Because the average number of volunteer hours worked had increased substantially as a result of prior evaluations suggesting its importance, this study considered effects of both the presence of at least minimal, threshold levels of volunteer work (between 0 and 10 hours/year), and of the total number of hours worked. A scale for *threshold level of volunteer experience* rated sites on a 5-point continuum, in terms of whether they offered, 1 - no experience; 2 - between 0 and 3.3 hours/student/year on average; 3 - 3.3 to 6.6 hours/student/year; 4 - 6.6 to 10 hours/student/year; 5 - greater than 10 hours/student/year. *Total volunteer experience* was simply the average number of hours worked by students at a site in a given year.

*Autonomy, Relatedness, and Volunteer Experiences Questionnaire.* This 32-item questionnaire was administered to all Teen Outreach students at a subset of 64 sites that agreed to participate in an extended process evaluation of the program. Process questionnaires were administered at the end of the academic year, as students were completing exit questionnaires for the program. Questions assessed the extent to which the program was viewed as: a) promoting adolescent autonomy by giving adolescents opportunities to feel responsible, in control and taken seriously; b) promoting a sense of connection between adolescents and both facilitators and other students; and, c) as providing a volunteer experience that was challenging, enjoyable and pride-instilling for students. Items were measured on a 4-point scale using a format similar to the Perceived Competence Scale for Children (Harter, 1982) which is designed to reduce the

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effects of a pull for social desirability. For each item, two contrasting stems were presented side by side, for example: "Some kids feel like their facilitator likes them a lot" and "other kids feel like their facilitator just likes them 'OK'." Adolescents were asked to decide which stem best described them and then to decide whether the statement was "sort of true" or "really true" for them.

First-order iterated principal factors analysis with an oblique rotation yielded 4 factors that were interpreted as representing: promoting positive autonomy, peer emotional support, facilitator emotional support and quality of volunteer experiences. These factors accounted for 35% of the variance in the original 32 items. Factors were created using unit-weightings of variables loading above .43 on a factor. Further analyses indicated that the three factors addressing issues related to students autonomy and relatedness (promoting positive autonomy, peer emotional support, facilitator emotional support) were highly correlated at the site level. Given both this finding, and prior research suggesting that promoting autonomy often co-occurs with behaviors promoting relatedness and that the two can be sensibly treated as a single entity for analyses (Allen et al., in press), these three factors were combined into a single second-order construct, labeled *Promoting Autonomy and Relatedness*. This second-order scale had high internal consistency (Cronbach's  $\alpha = .89$ ). The promoting autonomy and relatedness scale included items sampling the extent to which young people had input into the Teen Outreach program in its day-to-day operation, and were listened to, liked, respected and felt comfortable with facilitators and other students. For example, items included: "Some kids get to help decide what their group will do, BUT Other kids feel like their facilitator makes all the decisions"; "Some kids think their facilitator really listens to things they say, BUT Other kids think their facilitator doesn't listen to things they say,";

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and, "Some kids think its OK to talk about things like feeling lonely, BUT Other kids think they would be laughed at if they ever talked about being lonely." The *Quality of Volunteer Experiences* scale included items reflecting students' sense of accomplishment and pride in the work they performed, such as: "Some kids feel very proud of the volunteer work they do...BUT Other kids don't feel all that proud...". Internal consistency for this scale was also high (Alpha = .80). (Complete versions of this measure and its scales are available from the first author).

A *facilitator version* of this questionnaire was also administered to each Teen Outreach site facilitator. This questionnaire contained exactly the same items as the student version; facilitators were asked to fill out the questionnaire as they thought their students would. Scales were created from this questionnaire so as to be identical with the student version. These scales also had acceptable internal consistency (Alpha's = .83 and .70, for promoting autonomy and relatedness, and quality of volunteer experiences respectively).

#### Reduction of Data to Site-level

All data were summed and averaged within individual Teen Outreach sites for all analyses. This was done to provide the best measures of the program offered to students at a site, while minimizing the extent to which these measures were confounded with motivational differences among individual students at a site.

#### Procedure

Both the Teen Outreach program and its evaluation were typically administered as part of the regular school curriculum for student participants, with participation usually occurring as part of a class (typically health or social studies) taken for credit. Students were assessed at program entry at the start of the school year and then again at program

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exit in the late spring. The Teen Outreach Program was conducted during this same time period. Questionnaires were administered by Teen Outreach facilitators during an early Teen Outreach class, or in study halls and other school settings for comparison/control students. Students were told that none of their answers would be available to program facilitators or to other school officials and that no data which in any way identified them would be reported.

### Results

#### Program Implementation

Examination of means for ratings of program characteristics revealed that students and facilitators both rated the program relatively highly, although with significant variation across sites (Student mean ratings: Promotion of Autonomy and relatedness: 3.14 ( $sd = 0.32$ ); Quality of Volunteer Experience: 3.18 ( $sd = 0.32$ ); Facilitator mean ratings: Promotion of Autonomy and relatedness: 3.37 ( $sd = 3.44$ ); Quality of Volunteer Experience: 3.26 ( $sd = 0.52$ ) all on a 0 - 4 scale). Facilitators' estimates of student ratings were moderately correlated with students' ratings of the program ( $r$ 's = .59 and .42, for the autonomy/relatedness and volunteer scales respectively, both  $p$ 's < .001).

Students' and facilitators' ratings of program promotion of autonomy and relatedness were strongly related to their ratings of volunteer experiences ( $r$ 's = .78 and .53, respectively for students and facilitators,  $p$ 's < .001). Although rater effects make it likely that these correlations overestimate the true relations among constructs, given the magnitude of these correlations, a two-step analytic procedure was used to examine these scales in further analyses. Initial analyses examined promotion of autonomy and relatedness and quality of volunteer experience as predictors of program outcome in

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separate equations. Subsequently, hierarchical regression analyses were used to assess whether measures added to the variance in outcomes predicted by the other constructs assessed. This hierarchical approach provides a fair test of whether the final variable entered into equations make unique contributions to prediction of outcomes, and is not distorted by correlations among predictor variables. Only the  $\beta$  weights of the final hierarchical model will tend to demonstrate instability as a result of the correlations among predictor variables.

There was also substantial variation across sites in the amount of volunteer service students performed. The average site gave its participants 31.0 hours of volunteer work ( $sd = 24.3$ , range = 0 to 156 hours); all except 18 of these sites provided students with an average of at least one hour of volunteer work per month.

### Preliminary Analyses of Changes in Problem Behaviors

The overall effectiveness of Teen Outreach in reducing levels of suspension, course failure, school dropout and teen pregnancy has been previously documented with these data (National Research Council, 1987; Philliber & Allen, 1992). Although not the focus of this paper, a brief summary of these findings, presented in Table 2, provides a context for interpreting data on when and with whom Teen Outreach is most effective. As Table 2 indicates, Teen Outreach students went from having insignificantly more problem behaviors than comparison students at the beginning of the program to significantly fewer problem behaviors by the program's end. These findings have been found to be robust in analyses even when controlling for students' grade level, entry problem behaviors, and for parents' level of education and household composition (Philliber & Allen, 1992). They are also robust if problem behaviors are examined separately.

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Insert Table 2 about here.

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Initial analyses for this study also examined continuity in levels of behavior problems over time. Teen Outreach students' total number of behavior problems (assessed at the site level) at exit were moderately correlated with their number of problems at entry ( $r = .37$ ,  $p < .001$ ).

There were no interactions of the relation between entry and exit levels of problem behaviors with student demographic characteristics, or any of the program factors examined in the study. These findings indicate the importance and validity of statistically accounting for students' levels of problem behaviors at entry prior to examining predictors of levels of problem behaviors at exit. This approach has the advantage of accounting for regression effects within the data, while providing a sensitive measure of behavior problem change (Cohen & Cohen, 1975).

Next, analyses were performed to assess whether unmeasured school-wide factors at each site might have influenced changes in problem behavior levels of both Teen Outreach and comparison students at individual sites. We examined the relationship between residualized change scores of Teen Outreach and comparison students at the same sites. No correlation was found between change in number of problem behaviors in Teen Outreach participants and change in comparison students at the same site using site-level data ( $r(123) = .02$ ,  $p > .80$ ). This lack of correlation suggests that the success of Teen Outreach students at a site was unlikely to be an artifact of school-wide factors unrelated to the program. Thus, it was not considered necessary or useful to use comparison student change at a site as a covariate in further analyses. Further analyses

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were conducted using only data from the sample of Teen Outreach participants.

### Primary Analyses of Correlates of Program Success

Multiple hierarchical regression equations were next used to examine relations between student outcomes at program exit and: a) student socio-demographic characteristics; b) ratings of program promotion of autonomy and relatedness; and, c) ratings of quality of volunteer experiences. In all cases, the number of problem behaviors at a site at exit was the dependent variable, with number of problem behaviors at that site at entry entered first into equations as a covariate, followed by other socio-demographic or program factors of interest.

### Socio-demographic factors

The role of two demographic factors (students' gender and grade level), and of three potential markers of risk and/or socio-economic status (living in a one-parent family, parents' years of education, and racial/ethnic minority group membership) were examined first. Table 3 presents the results of this equation in which entry level of problem behaviors was entered first, followed by a block of demographic factors followed by the block of parent socio-economic status factors. Only the block of demographic factors added significantly to the prediction of Teen Outreach students' problem behaviors at exit. Examination of individual demographic factors within this block revealed that students' grade level was the sole significant predictor of problem behaviors at exit. Teen Outreach sites that had more students in higher grades were likely to have fewer exit problem behaviors (after accounting for entry behaviors) when compared to Teen Outreach sites with more students in lower grades.

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Insert Table 3 about here.

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Relation of Demographic and Program Factors

Given the positive relation between student grade and positive site-level outcomes, simple correlations were next examined for descriptive purposes between average grade-level of students at a site and other program factors. Both student and facilitator ratings of program promotion of autonomy and relatedness were positively correlated with average grade-level of students ( $r$ 's = .34 and .30,  $p$ 's < .01 and .05 respectively), and there was a trend toward a positive relation between grade level and total volunteer hours worked. Given these findings, all further analyses also considered main effects and interactions of students' grade level.

Promotion of Student Autonomy and Relatedness

Students' perceptions of the extent to which Teen Outreach promoted their autonomy and relatedness were examined as predictors of program outcome using the same hierarchical regression approach described above. The results of this analysis, shown in Table 4, indicate that program promotion of student autonomy and relatedness was predictive of lower levels of problem behaviors at exit. There was also a significant interaction of student grade level and program autonomy and relatedness in predicting outcomes. This interaction was examined by analyzing separately sites with predominantly middle school age vs. high school age students in regression equations predicting problem behaviors. This analysis revealed that promotion of autonomy and relatedness was linked to lower levels of exit problem behaviors in middle school sites, though not in high school sites.  $\beta$  weights are also provided in Table 4 for these

separate analyses. The main effect of student grade level appeared as a trend before considering autonomy and relatedness, but was non-significant ( $B = -.04$ ,  $p > .75$ ) after accounting for promotion of autonomy and relatedness at a site.

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Insert Table 4 about here.

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Facilitator ratings of autonomy and relatedness at Teen Outreach sites also interacted with grade level to predict exit problem behaviors. These results are also depicted in Table 4. As with student ratings, these interactions revealed that promotion of autonomy and relatedness was strongly linked to lower levels of problem behavior at exit in middle school, but not in high school sites.

#### Quality of Volunteer Work Performed

Students' perceptions of the quality of the volunteer work they performed were examined next using the approach described above. Similar patterns were found for both student and facilitator ratings of quality of volunteer work, as depicted in Table 5. In both cases, the only significant finding was an interaction between grade level and quality of volunteer work in predicting outcomes. Student ratings of the quality of volunteer experience were linked to lower levels of problem behaviors in middle school sites but to slightly higher levels of problem behaviors in high school sites. No significant findings were obtained when examining facilitator ratings separately for middle and high schools, rendering this interaction difficult to interpret.

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Insert Table 5 about here.

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### Number of Hours of Volunteer Work Performed

The raw average number of hours worked per student at a site was next used to predict outcomes using the same procedure described above. No significant main effects nor interactions with grade were obtained. Next, predictions from the scale for threshold levels of volunteer experience were examined to address the question: Is the presence of at least some volunteer work related to the effectiveness of Teen Outreach sites? No main effects were found but significant interactions with grade were found consistent with the pattern described above. Results are depicted in Table 6. Middle school sites that had very low numbers of volunteer hours per student per year (e.g. 0 - 5), did less well than those having more hours. No effect was found for high school sites. Taken together, these findings indicate that increasing volunteer hours from 0 to 10 hours per student per year was associated with better outcomes at a site, but that further increases in volunteer hours beyond that were not associated with further improvements in outcomes.

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Insert Table 6 about here.

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### Assessing Combined Predictions from Process Measures

The analyses described above were followed up with analyses to determine whether the effect of volunteer experiences (both amount and quality) appeared to be direct, or may have been mediated by overall qualities of promotion of autonomy and relatedness within a site. To examine this, hierarchical regressions were examined in which a volunteer measure (e.g. rated quality of volunteer experiences) and its interaction with grade level, were entered into predictive equations *after* entering students' perceptions of

program autonomy and relatedness, and the interaction of these perceptions with grade level. We examined measures of both amounts of volunteer experience and of student and facilitator ratings of quality of volunteer experiences. Only students' ratings of the quality of volunteer experiences significantly added to the model after entry of program promotion of autonomy and relatedness. Results are depicted in Table 7. Examination of the full, simultaneous model, incorporating both student ratings of autonomy and relatedness, and of volunteer experiences revealed a strong, significant relation of promoting autonomous relatedness to better outcomes, a trend toward overall quality of volunteer experience being linked to better outcomes, and an interaction effect, in which better ratings of volunteer experience in high school were actually linked to slightly worse outcomes when all other variables were accounted for in the model.

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Insert Table 7 about here.

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### Discussion

This study found that the success of an effective intervention to prevent adolescent problem behaviors was linked both to its promotion of students' sense of autonomy and relatedness and to its provision of high quality volunteer experiences to participants. Each of these findings made independent contributions to explaining program success. These findings were most apparent with younger age students; the success of the program with older students was less easily explained. Overall, nearly one-third of the variance in student outcomes at the site-level could be explained by these factors. In contrast, student sociodemographic characteristics were not directly related to the success of the program, indicating that it was equally successful with students from a wide range

of backgrounds. Each of these findings and their limitations are discussed in turn below.

The strongest findings in this study were that Teen Outreach sites that were perceived by students as promoting their own autonomy and sense of relatedness with other students and with Teen Outreach facilitators had substantially better outcomes than sites where this perception was less prevalent. This effect and its interaction with student grade-level accounted for 23% of the variance in the number of problem behaviors students experienced at exit at the site level, *after* also accounting for their level of problem behaviors at entry. Effects were primarily apparent among students in younger grades. Similar, though weaker findings were also obtained when *facilitators* rated the extent to which their site promoted student autonomy and relatedness, indicating that results were not simply an artifact of students providing self-reports of both problem behaviors and site characteristics. Ratings of site characteristics by students and facilitators were not related to students' levels of problem behaviors at entry. This suggests that ratings of a site's characteristics were not simply a reflection of the overall level of functioning of students in that program.

Amount and quality of volunteer work that students performed displayed some relation to program outcomes, but only for students in middle school sites. Also, hours of volunteer work were sensitive predictors of site outcomes only at lower threshold levels of volunteer work. Middle school sites providing at least threshold levels of volunteer experience (10 hours/year/student), had better outcomes than sites providing less experience. However, sites providing much more than 10 hours/year/student did not fare substantially better than sites providing this minimal level. These tests were, however, dependent upon data from a relatively small number of sites in which students performed low levels of volunteer work. These findings raise the question about student

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volunteer work: "Is more always better?" but should in no way be taken as providing a conclusive answer to this question.

When measures of amount and quality of volunteer experience were entered into equations along with student ratings of program autonomy and relatedness, a main effect was found for program promotion of autonomy and relatedness predicting better outcomes, and an interaction of grade and quality of volunteer experience was also found, with highly rated volunteer experience linked to more positive outcomes in middle school sites but not in high school sites. These findings indicate that program autonomy and relatedness remains a strong predictor of student outcomes, even when other measures are entered into predictive equations, but that for younger students, the quality of volunteer experience received also adds significantly to predictions.

Interestingly, although the best prediction of site outcomes was found in the younger grades, sites with older students actually appeared to have slightly better outcomes overall, a finding also reported in prior evaluations of this program (Allen et al., 1990). Potentially significant is the finding that sites with more older students also scored slightly higher on promotion of autonomy and relatedness, and amount of volunteer work performed, than did sites serving younger students. Notably, grade-level effects disappeared in equations which also accounted for program promotion of autonomy and relatedness. This indicates that previously reported grade level effects on program outcomes could have been mediated by lower levels of promotion of autonomy and relatedness in the younger grades. This also suggests that one explanation for the interactions of program characteristics with student grade level that repeatedly appeared is that a ceiling effect may have been partially inhibiting our ability to detect effects among older students. That is, if high school sites were consistently promoting autonomy

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and relatedness in students and providing substantial, high quality volunteer opportunities, it then becomes difficult to distinguish among these sites in terms of these characteristics. The presence of both a main effect and an interaction of student ratings of program autonomy and relatedness in predicting student outcomes suggests that this factor was relevant to outcomes for the sample as a whole; it also suggests, however, that further work may be needed to explain why this factor is more powerfully predictive in sites with younger students.

Taken together, these findings provide evidence that the extent to which a site fosters adolescents in their developmental tasks of establishing autonomy and a sense of relatedness in social interactions is strongly linked to the success of that program in reducing student problem behaviors. Student ratings of volunteer work, though highly correlated with student ratings of program autonomy and relatedness, also independently contributed to the prediction of program outcomes. This suggests that while volunteer service may be intricately connected to students' sense of autonomy and relatedness, it may also help students in their development in other ways as well. Developmental theorists have noted that, in addition to autonomy and relatedness, a sense of competence may be a third independent developmental need of children and adolescents (Connell, 1990); such competence may be precisely what volunteer experiences provide to students.

Although these findings still require further replication, they suggest that programs targeted at adolescents might benefit from focusing upon adolescents' developmental need to establish themselves as capable, independent individuals within the context of positive relationships with peers and adults. Although adolescents' strivings for independence might at first appear to provide obstacles to efforts to help them, the Teen

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Outreach Program data suggest that these strivings might also be turned into a powerful tool if programs can align with these developmental pushes rather than trying to limit them. The notion emerging from the developmental literature that adolescents' optimally must establish autonomy while maintaining important social relationships (Allen et al., in press) suggests that developing interventions for teenagers in which they can experience autonomy within a program may not only not be a contradiction in terms, but may actually be a means of facilitating a critical developmental task.

If replicated, these findings have important implications for social policies intended to enhance youth involvement in community volunteer service. For example, the recent growth of interest in volunteer programs has led some states to implement mandates in which volunteer work is required as a condition of high school graduation (Moore & Allen, 1993). Aside from the conceptual confusion inherent in notions of 'mandated volunteer service,' data from this study suggest that taking away the element of student choice (i.e. autonomy) in volunteering may remove a critical ingredient of the experience.

A number of important limitations must be noted regarding the findings described above. Most importantly, although these data are longitudinal, and carefully assess baseline levels of problem behaviors and other potentially confounding factors such as student demographic characteristics, they still cannot support causal inferences. It is possible that measures of autonomy and relatedness at a site reflect students' status rather than influence it, although available evidence did not generally support this idea. It is also possible that unconsidered factors influence both site outcomes and the extent to which a program promotes autonomy and relatedness among students at that site. Obtaining measures from multiple informants and including items sensitive to both

student and facilitator behavior lessens this possibility, but does not eliminate it.

It is also worth noting that the strikingly high percentages of variance accounted for in exit problem behaviors in some analyses may not directly translate into strong predictions to individual students. By examining data at the site level, we increase generalizability of findings but we also average out fluctuations in levels of problem behavior among individual students over time. The result is to average out "noise" in problem behaviors among individual students and allow a more powerful focus upon changes that might be influenced at the site level. This is not to minimize the importance of site-level findings, but rather to emphasize that these data tell us very little about what would happen to any individual student in a Teen Outreach site.

Finally, a major question remaining from this study is whether the findings described above will replicate across other similar types of interventions. The data reported suggest that the Teen Outreach program is equally successful with students from a wide range of socio-demographic backgrounds. Further research will be needed to determine whether program promotion of student autonomy and relatedness will be equally linked to the successful outcomes for other types of preventive interventions. If replicated, these findings have implications not just for specific interventions, but for existing systems, such as schools, that regularly seek to serve adolescents effectively. Sarason has frequently noted the need to take education "beyond the walls of the classroom" (Sarason, 1982). It may be that Teen Outreach, by helping adolescents with the developmental tasks of becoming autonomous, well-connected individuals, provides some of the 'real life' education of which Sarason has written. The results presented suggest some of the developmental mechanisms that may operate when the education of adolescents moves outside of school classrooms.

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## Preventing Adolescent Problem Behaviors

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Table 1

**Socio-demographic Characteristics of Teen Outreach and Comparison Students at Entry**

	<b>Teen Outreach</b> <b>N = 1849</b> <b>Mean</b> <b>(s.d.)</b>	<b>Comparison</b> <b>N = 1765</b> <b>Mean</b> <b>(s.d.)</b>
Age (years)	15.2 (1.5)	15.3* (1.5)
Grade in School	9.2 (1.5)	9.3 (1.5)
Grades 7-9	59.9%	58.2%
Grades 10-12	40.1%	41.8%
<b><u>Gender</u></b>		
Females	71.8%	66.7%***
Males	28.1%	33.3%
<b><u>Race/Ethnicity</u></b>		
Black	39.8	37.2%
White	42.5%	45.5%
Hispanic	13.7%	13.1
Other	4.1%	4.1%
Mother's Education Level	2.23 (0.94)	2.30 (0.95)
Father's Education Level	2.32 (0.99)	2.38 (1.01)
Live in two- parent household	53.4%	53.8%

Note. \*  $p < .05$ ; \*\*\*  $p < .001$ . (for tests of differences between groups).

## Preventing Adolescent Problem Behaviors

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Table 2

**Problem Behaviors Reported by Teen Outreach and Comparison Students  
at Program Entry and Exit**

	Teen Outreach N = 1849 Percentage/Mean (s.d.)	Comparison N = 1765 Percentage/Mean (s.d.)
<u>Program Entry</u>		
Fail any courses in prior year	34.9%	33.4%
Suspended in prior year	18.7%	18.6%
Pregnant previously	5.3%	5.5%
Total Problem Behaviors	.59 (.73)	.58 (.75)
<u>Program Exit</u>		
Fail any courses during year	32.6%	36.9%**
Suspended during year	16.8%	21.2%***
Pregnant during year	3.5%	5.3%**
Total Problem Behaviors	.53 (.72)	.63*** (.78)

Note. \*\*\*  $p < .001$ . \*\*  $p < .01$ . \*  $p < .05$ . (for tests of differences between groups)

## Preventing Adolescent Problem Behaviors

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Table 3

**Hierarchical Regression Predicting Behavior Problems at Exit  
from Student Socio-demographic Characteristics**

<b>Step</b>	<b>Behavior Problems at Exit</b>		<b>Total R<sup>2</sup></b>
	<b>B</b>	<b><math>\Delta R^2</math></b>	
I. Problem Behaviors (Entry)	.45***		
Statistics for Step I.		.16***	.16***
II. Demographic Characteristics			
Grade Level	-.22*		
Gender	-.07		
Statistics for Step II.		.06*	.22***
III. SES Risk Factors			
Live in One-parent family	-.13		
Parents' average years of education	-.03		
Racial/ethnic minority group member	-.22		
Statistics for Step III.		.04	.26**

Note. B's for each equation are from the full model. Model *df* = 6, 116.

\*\*\*  $p < .001$ . \*\*  $p < .01$ . \*  $p \leq .05$ .

## Preventing Adolescent Problem Behaviors

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Table 4

**Hierarchical Regression Predicting Exit Behavior Problems from  
Promotion of Autonomy and Relatedness and Students' Grade Level**

Equation for Student-rated Autonomy and Relatedness	Behavior Problems at Exit		
	B	$\Delta R^2$	Total $R^2$
Step			
I. Problem Behaviors (Entry)	.35**	.06+	.06+
II. Grade Level	-.04	.04+	.10*
III. Promoting Autonomy and Relatedness	-.21+	.08*	.18**
IV. Promoting Autonomy and Relatedness X Grade Level (Auton-Rel $\beta$ Middle school = -.72*** Auton-Rel $\beta$ High school = .11)	.42***	.15***	.33***
Equation for Facilitator-rated Autonomy and Relatedness			
Step	B	$\Delta R^2$	Total $R^2$
I. Problem Behaviors (Entry)	.34*	.06+	.06+
II. Grade Level	-.08	.03	.09+
III. Promoting Autonomy and Relatedness	-.03	.01	.10
IV. Promoting Autonomy and Relatedness X Grade Level (Auton-Rel $\beta$ Middle school = -.50* Auton-Rel $\beta$ High school = .27+)	.31*	.08*	.18*

Note.  $\beta$ 's for each equation are from the full model.  $\beta$ 's in parentheses for grade level interactions are for regressions conducted separately for middle and high school age students. Model  $df = 4, 58$ .

\*\*\*  $p < .001$ . \*\*  $p < .01$ . \*  $p \leq .05$ . +  $p \leq .10$ .

## Preventing Adolescent Problem Behaviors

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Table 5

**Hierarchical Regression Predicting Exit Behavior Problems from  
Quality of Volunteer Experiences and Students' Grade Level**

<u>Equation for Student-rated Quality of Volunteer Experience</u>		<u>Behavior Problems at Exit</u>		
		<u>B</u>	<u>Δ R<sup>2</sup></u>	<u>Total R<sup>2</sup></u>
<b>Step</b>				
I. Problem Behaviors (Entry)		.43***	.06+	.06+
II. Grade Level		-.20+	.04+	.10*
III. Qual. of Vol. Exper.		-.01	.04	.14*
IV. Qual. of Vol. Exper. X Grade Level		.55***	.24***	.38***
(Vol. Exper. B <sub>Middle school</sub> = -.65*** Vol. Exper. B <sub>High school</sub> = .38*)				
<u>Equation for Facilitator-rated Quality of Volunteer Experience</u>				
<b>Step</b>		<b>B</b>	<b>Δ R<sup>2</sup></b>	<b>Total R<sup>2</sup></b>
I. Problem Behaviors (Entry)		.37**	.06+	.06+
II. Grade Level		-.20	.03	.09+
III. Qual. of Vol. Exper.		.05	.00	.09
IV. Qual. of Vol. Exper. X Grade Level		.35*	.10*	.19*
(Auton-Rel B <sub>Middle school</sub> = -.13 Auton-Rel B <sub>High school</sub> = .27)				

**Note.** B's for each equation are from the full models. B's in parentheses for grade level interactions are for regressions conducted separately for middle and high school age students. Model *df* = 4, 58 (for each model).

\*\*\*  $p < .001$ . \*\*  $p < .01$ . \*  $p \leq .05$ . +  $p \leq .10$ .

## Preventing Adolescent Problem Behaviors

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Table 6

**Hierarchical Regression Predicting Exit Behavior Problems from  
Amount of Volunteer Experience/Student/Year**

Step	Behavior Problems at Exit		Total $R^2$
	B	$\Delta R^2$	
I. Problem Behaviors (Entry)	.45***	.14***	.14***
II. Grade Level	-.24**	.06**	.20***
III. Amt. of Vol. Experience	.00	.01	.21***
IV. Amt. of Vol. Experience X Grade Level	.20*	.03*	.24***
(Amt. Vol. Exper. $\beta$ Middle school = -.22* Amt. Vol. Exper. $\beta$ High school = .05)			

Note.  $\beta$ 's for each equation are from the full model.  $\beta$ 's in parentheses for grade level interactions are for regressions conducted separately for middle and high school age students. Model  $df = 4, 118$ .

\*\*\*  $p < .001$ . \*\*  $p < .01$ . \*  $p \leq .05$ . +  $p \leq .10$ .



EXECUTIVE OFFICE OF THE PRESIDENT  
OFFICE OF MANAGEMENT AND BUDGET  
WASHINGTON, D.C. 20503

UP-Teen Pregnancy

April 29, 1994

MEMORANDUM FOR MARY JO BANE  
DAVID ELLWOOD  
BRUCE REED

FROM: Isabel Sawhill and Richard Bavler  
SUBJECT: School-linked mentoring initiative

A large-scale program of mentoring aimed at at-risk adolescents and pre-adolescents has been proposed as part of the prevention theme in welfare reform. At a recent specs meeting on prevention, it was argued that this proposal should not be included in welfare reform because we lack rigorous evidence of mentoring's effectiveness. Funding for the whole welfare reform initiative is tightly constrained. With mentoring, as with other proposed policies and programs, questions about evidence of effectiveness are completely in order when making difficult resource allocation decisions. However, the last discussion of the mentoring initiative was cut short before several relevant questions could be discussed: 1) Do we have proof that such programs are effective? 2) Is the proof-of-effectiveness test being applied consistently to all elements in the welfare reform package? 3) Are there good reasons that a large-scale initiative should not wait for proof of effectiveness from demonstration research?

1. Do we have proof that such programs are effective?

The proposal for a school-linked prevention initiative is still being fine-tuned. However, the role of participating adults is likely to be consistent with the serviceable definition of a mentor found in a 1993 report of the National Research Council panel on at-risk youth:

Mentors, in the traditional sense of the term, are adults, typically unrelated volunteers, who assume quasi-parental roles as advisers, teachers, friends, and role models for young people. Mentors are often expected to be confidants and advocates and, in some programs, to develop collaborative relations with parents and school staff.<sup>1</sup>

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<sup>1</sup> Joel F. Handler (chair), Losing Generations: Adolescents in High-Risk Settings, National Research Council, Washington DC, 1993, p.213.

The same report reaffirms the findings of an earlier panel on teenaged pregnancy.<sup>2</sup> Rigorous evaluations of mentoring programs have not been performed and their effectiveness has not been proven. Public/Private Ventures is in the midst of the most rigorous evaluation to date of a mentoring model, but results will not be available for another year.

The absence of rigorous evaluation does not mean that we have no clues about designing a good mentoring program:

- \* Lack of permanence in the mentor's presence may be the most frequently mentioned source of problems. If adult volunteers don't have realistic expectations and determination to stick to it, the experience for the adolescent may amount to just one more rejection by adults.
  - \* On the other hand, when a volunteer adult does stick with it, his or her constancy tells the adolescent that he or she is valued in a way that the attention of a paid "service provider" probably cannot.
  - \* Matching individual adolescents and mentors is very difficult, and perhaps a majority fail. The greatest chance of success may be to expose adolescents in need of mentors to many adults and allow maximum self-selection.
  - \* Peer influence outside the program can undermine mainstream messages. Mentoring in groups and peer mentors may help.
  - \* Training and supervision of mentors is essential and not cheap.
  - \* A program of 1,000,000 mentors by the year 2000 may be unattainable.
2. Is the proof-of-effectiveness test being applied consistently to all elements in the welfare reform package?

By itself, undemonstrated effectiveness has not been a bar to inclusion in the package. For example funding for higher earnings disregards and child support pass-throughs was included to improve government assistance despite the lack of demonstrated effectiveness of the latter policy and considerable evidence that the

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<sup>2</sup> Cheryl D. Hayes (ed), Risking the Future. Adolescent Sexuality, Pregnancy, and Childbearing, Volume I, National Research Council, Washington DC, 1987, p.178.

former does not do what its advocates hope.<sup>3</sup> Similarly, shares of JOBS and WORK funds are to be available for working with non-custodial parents notwithstanding that we are still waiting for the Parents' Fair Share Demonstration to provide us our first rigorous test of whether such programs will increase child support.

Other considerations besides demonstrated effectiveness are thought to warrant inclusion of these policies. For example, despite the weight of evidence, interest in higher earnings disregards remains strong. Higher disregards are included in many demonstration waiver packages submitted by states, and high "tax" rates on the earnings of welfare recipients is often cited as a cause of low work effort. A similar argument can be made for responding to strong public interest in prevention of children having children, even if we do not have a response which will guarantee success.

3. Are there good reasons that a large-scale initiative should not wait for proof of effectiveness from demonstration research?

Advocates of a broad initiative are not opposed to concurrent rigorous research on the impact of mentoring on risk-taking behaviors of youth. However, on at least three grounds, a larger-scale initiative may be indicated even in the absence of such research.

First, a large scale effort may be a precondition of prevention impacts. The chief problem mentoring is intended to address is often termed "social isolation."<sup>4</sup> William Julius Wilson's key formulation defines social isolation as "the lack of contact or of sustained interaction with the individuals or institutions that represent mainstream society."<sup>5</sup>

In Wilson's view, the current problem of social isolation resulted when the large numbers of middle-class families that were a norm in inner-city neighborhoods took advantage of new residential opportunities. It may not be reasonable to expect that a relatively few mentors will be able to make credible the mainstream behaviors and values that used to be, but no longer are, evinced in the every day behavior of majorities or large minorities in a neighborhood.

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<sup>3</sup> see, for example, Robert Moffitt, "Incentive Effects of the U.S. Welfare System: A Review," Journal of Economic Literature, March 1992.

<sup>4</sup> The recent NRC report puts it this way: "Perhaps the most serious risk facing adolescents in high-risk settings is isolation from the nurturance, safety, and guidance that comes from sustained relationships with adults."

<sup>5</sup> cited in Roberto M. Fernandez and David Harris, "Social Isolation and the Underclass," in Drugs, Crime, and Social Isolation, Urban Institute, Washington DC, 1992, p.257.

A second argument starts with differences between the "service" "delivered" by mentoring programs and the services delivered in other programs. A relationship with someone willing to make a voluntary commitment to your future welfare is more than an instrumental good, like typing skills. It is an intrinsic good, something of value in itself, in addition to whatever other benefits it may make possible.

If a mentoring program reduces a child's social isolation or increases his self-esteem, the program might be judged worthwhile even if the child's behavior did not change measurably for the better.

A third argument notes that, by its nature, mentoring brings some "haves" into contact with "have nots" and counteracts tendencies towards social polarization by promoting a sense of community.

cc: Gene Sperling  
William Galston  
Paul Dimond  
Kathi Way  
Jeremy Ben-Ami

WR - Teen Pregnancy DRAFT

April 7, 1994

MEMORANDUM FOR THE CO-CHAIRS, WELFARE REFORM WORKING GROUP

FROM:	Bill Galston	Belle Sawhill
	Gene Sperling	Chris Edley
	Paul Dimond	Sheryll Cashin

SUBJECT: National Mobilization for Youth

*"The American people have got to want to change from within if we're going to bring back work and family and community. We cannot renew our country when within a decade more than half of the children will be born into families where there has been no marriage. We cannot renew this country when 13 year-old boys get semi-automatic weapons to shoot 9 year-olds for kicks. We can't renew our country when children are having children, and the fathers walk away as if the children don't amount to anything. . . . We can't renew our country unless more of us - I mean all of us - are willing to join the churches and the other good citizens. . . unless we're willing to work with people . . . who are saving kids, adopting schools, making streets safer. All of us can do that. We can't renew our country until we realize that governments don't raise children, parents do.*

*. . . I'm telling you, we have go to stop pointing our fingers at these kids who have no future and reach our hands out to them. Our country needs it, we need it, and they deserve it.*

*So I say to you tonight, let's give our children a future. Let us take away their guns and give them books. Let us overcome their despair and replace it with hope. Let us, by our example, teach them to obey the law, respect our neighbors, and cherish our values. Let us weave these sturdy threads in to a new American community that can once more stand strong against the forces of despair and evil because everybody has a chance to walk into a better tomorrow."*

-- William J. Clinton  
State of the Union  
January 26, 1994

We continue to believe that the Administration's welfare reform plan must include a strong commitment to addressing the future life chances of the young people on whom the President focussed so passionately in the conclusion to his State of the Union address. If we are serious about transforming the welfare system, welfare reform must include a national commitment and a program of national scope that targets young people before they become pregnant, before they go on welfare, before they become trapped in a cycle of poverty. No demonstration program even purports to address the nature of the problem or to respond to the President's call.

The troubling statistics bear repeating:

- Welfare caseloads are rising dramatically -- 25 percent in the last five years, with most of the growth due to increasing rates of out of wedlock births.
- Dramatic percentages of boys and men continue to fail to

meet their obligations to support the children they father - -nearly \$34 billion dollars a year in potential child support goes uncollected.

- The poverty rates for unmarried, young single mothers are dramatic -- almost 80 percent of the children of young persons who have a child before they graduate from high school, outside of marriage, and while a teenager are living in poverty. Nothing hurts the lifechances of teenage girls more than out-of-wedlock parenting.
- The number of births to unmarried teen mothers tripled in the past twenty years -- from 163,000 in 1960 to 368,000 in 1991.

As you know, we have proposed a National Mobilization for Youth Opportunity and Responsibility as a central feature of the Administration's welfare reform effort. The idea clearly met with wide and favorable response from the Working Group and the Cabinet. We have proposed a broad, universal scope for this campaign to send a powerful message to youth of all backgrounds, ages and classes -- through our lifelong learning agenda for all youth, a newly organized private support organization, and a variety of media. We have urged the adoption of clear, national and individual goals to reflect our commitment to increase high school graduation rates, reduce teen pregnancy, and increase the number of youths moving on to higher education and into the workforce.

However, these broad national efforts are only one part of our recommendation. Another part of our proposal is an effort targeted at those youth most at risk of being trapped in a cycle of poverty and dependency. This must be a significant program, national in scope, and sufficient in the scale of resources devoted to it to reflect its central role in the overall welfare reform effort. It must use limited federal resources to leverage far larger commitments of continuing support throughout each local region. It must provide support on a sustained basis, at least from ages ten (or earlier) through age eighteen. Attached is an outline of a budget that we are in the process of refining with the relevant participants.

We realize that final financing and budget decisions for welfare reform are about to be made, and understand the difficult trade-offs we face in the current budget environment. As these decisions are made, we urge that the resources devoted to the targeted initiative for at-risk youth reflect a real commitment to dealing with these issues. We urge the adoption of an Ounce of Prevention funding strategy as in the Crime Bill, under which something like one sixteenth of the overall funding for welfare reform would go into these targeted opportunity efforts. Such a balanced funding strategy for welfare reform addresses the basic issues even more directly than in the Crime Bill and will permit us to build a broader base of support from the outset.

PROPOSED BUDGET -- National Mobilization for Youth  
School-Based BEST Centers

The proposal we are developing assumes a cost of \$50,000 per year per school to galvanize the creation of a BEST center and the mobilization of resources from existing federal and state programs and from outside partners. This includes the cost of one National Service participant at each school and the costs of establishing a network of mentors to support the students.

Two options for phasing in this program are described below. Option A phases in 200 schools a year over five years. Option B phases in 500 schools per year over five years. Each Option assumes a ten percent federal overhead cost for administering the grant program, providing training and technical assistance and other general support, and creating and operating a national information clearinghouse and network.

	OPTION A	OPTION B
Year 1	\$11 million	\$27.5 million
Year 2	\$22 million	\$55 million
Year 3	\$33 million	\$82.5 million
Year 4	\$44 million	\$110 million
Year 5	\$55 million	\$137.5 million
FIVE YEAR TOTAL	\$165 million	\$412.5 million
Years 6 - 10	\$55 million/year	\$137.5 million/year
TEN YEAR TOTAL	\$440 million	\$1.1 billion

April 6, 1994

DRAFT DISCUSSION PAPER: NATIONAL MOBILIZATION B.E.S.T. CENTERS

A key component of the National Mobilization for Opportunity and Responsibility for Youth is the creation of a national network of school-linked, community-based teen opportunity and responsibility centers in up to 2500 high poverty middle and high schools with at-risk students by the year 2000. These "Build Essential Skills for Tomorrow" (BEST) centers will serve as a focal point for exposing youth to positive role-models and opportunities, for motivating them to stay in school and on track to the labor market, and for communicating messages of responsibility concerning sexual behavior and parenting. They will also be home to efforts to create Be the BEST You Can Be partnerships with a "million mentors" serving as coaches and tutors on a sustained basis for at-risk youth from age 10 to 18.

**National Support**

We propose offering federal challenge grants which communities and schools can use to create BEST centers under a wide range of models. In addition to funding, schools in the program will each be provided an Americorps member to staff the center, which guarantees a central role for young role models at the heart of the program. The challenge grant process will be designed to promote local flexibility, to maximize the use of existing sources of federal and other support, and to build on successful local initiatives already underway.

To encourage schools to develop BEST centers by linking to community sponsors and by maximizing the use of other available funding streams, awards could be made to schools which take several of the following steps:

- establish a link with a local college or university to create mentoring relationships between their students and the school and/or commitments to help guarantee further education to high school graduates (see Urban Excellence Corp description below)
- create a partnership with a private sector employer in their community to sponsor, for instance, a school-to-work style apprenticeship program or to provide mentors, tutors, or other support for the school

- set up a partnership with a broad-based consortium of local institutions including employers, community-based organizations, churches, colleges, and others to support the school and the students
- apply for and receive any of a wide range of new federal opportunities from school-based health clinics through the Health Security Act to funds from the crime bill to support youth programs; to participation in federal school-to-work initiatives

Funding awarded through the challenge grant process could be used to hire additional staff, purchase equipment and supplies, or run special programs such as opportunity fairs, or special classes for teens on responsible parenting decisions.

### Targeting

The grants will be made available to high poverty schools, which corresponds to areas with high teen birth rates. The Department of Education has suggested a targeting strategy that focuses on schools where at least 75 percent of the children are from families below the poverty line. There are 786 75% poor middle and junior high schools and 1149 75% poor high schools. They estimate that the target population in these schools would be approximately 1.3 million students. Many of these schools are in rural areas, so there would need to be a requirement regarding the distribution of funds between urban and rural areas.

### Cost and Phase In

Cost estimates depend on the extent of the support provided. A rough estimate per position of each National Service participant is \$15,000. Schools could be provided, for instance, up to \$50,000, including the National Service position to cover the cost of equipment, supplies, special classes, and materials. If the goal of the program is to enroll 500 schools per year, then the total cost would be \$125 million per year when fully implemented. There would also be costs at the federal level associated with running a new grant program and perhaps with supplying some national training, technical assistance, and materials. This modest investment would marshal many sources of local support and make information about school-to-work and college scholarship and loan opportunities available to every young person who succeeds at learning.

## POSSIBLE B.E.S.T. CENTER MODELS

Schools and communities would be able to develop BEST centers in a variety of ways designed to meet local needs and harness local resources. We initially envision several components common to all schools -- including the central role of the National Service program, partnerships with outside entities such as universities and businesses to provide mentors and other resources, and the center's function as a focal point for a range of programs related to both youth opportunity and responsibility. These are described in more detail below. Schools could also choose to develop centers in a variety of creative ways to fit within this broad model. Some of these options include an Urban Excellence Corps or an intensive community service model as outlined below.

### Common Features of the BEST Model

While ensuring local flexibility to design BEST center models to meet community and school needs is important, several central features of the model would likely be common to all sites:

- National Service participation -- one common factor is the participation of people engaged in National Service as the focal point for organizing the centers. We envision a National Service participant in each school helping to develop the BEST center, engage outside partners, and coordinate access to available outside resources. A reasonable phase-in of this program will be critical to the ability of the Corporation for National and Community Service to play such a central role. A phased roll-out of perhaps 500 schools a year beginning with the '95-96 school year might be feasible.
- Partnerships -- a second key element of the BEST model is each school developing partnership with one or more leading institutions in its community. Partners would primarily be responsible for organizing and supporting mentoring programs which engage people, primarily young people, as tutors, coaches, and role models for the youth in the schools. One option for a BEST center, described below, is to engage local universities and colleges as early as possible in the lives of kids in schools in their communities (see Urban Excellence Corps, below). Other possible partners include local businesses who could provide support through school to work apprenticeships or consortia of local actors such as community based organizations, spiritual communities and existing cooperative councils.

- Mentoring -- Establishing a network of well-trained and well-informed mentors to provide information to youth in the schools and act as role models and guides is central to the National Mobilization. The BEST center would be the focus for organizing a sustained, ongoing mentoring program and coordinating the involvement of outside actors. The mentors would be the "glue" connecting youth to other administration initiatives promoting opportunity and responsibility.
- Wide Range of Services -- An important part of the vision of the BEST centers is that their focus is broader than simply counseling on avoiding teen pregnancy. They should be a catalyst for bringing a range of opportunities to youth at the school and others in the community. BEST centers would be expected to promote programs that deal with parenting and responsibility as a central feature of their mission. However, they would also be expected to match that focus with sponsorship and coordination of programs ranging from recreation to family literacy to apprenticeships.

A couple of issues have arisen around the target age group and the focus of the proposed services:

- Focus on Younger Children -- There is interest both in targeting the efforts of the BEST centers toward high school students at the greatest need of this kind of programming and in focusing on children as early as possible. One way to structure the program to avoid valuing one approach over another is to permit applications from schools of any level, and to make tradeoffs during the selection process. Another possibility is to encourage applications from school districts that propose integrating services in a group of elementary, middle and high school to ensure continuity of contact and services to particular students as they progress through the school system.
- Balance Focus on Opportunity and Responsibility -- A second issue is to define more clearly the focus of the centers. These centers are a part of the "teen pregnancy prevention" initiative. Therefore, some people see them as focused exclusively on the "responsibility" side sponsoring programs, mentoring and other activities geared at lowering the rate of teen pregnancy. Others see the emphasis on opportunity -- the Urban Excellence Corps, the School Service Corps, etc. It is not clear whether there would be separate centers in the same school, or whether these are, in fact, best viewed as part and parcel of the same center.

#### Optional Model A: Urban Excellence Corps

One option proposed for developing a school-based BEST center is to engage a local college or university as a full partner in a broad effort to promote a vision of opportunity for youngsters as early as the sixth grade. Gene Sperling has proposed what he calls the Urban Excellence Corps which would have some of the following features:

- **RESPONSIBILITY CONTRACT:** Colleges would reach out to 6th graders and offer them a Eugene Lang style challenge -- commit to your education and graduate from high school, and we will find you a place in our university or an appropriate advanced training or education program. Early outreach to children is critical to changing their expectations for the future.
- **MENTORS:** The colleges would provide mentors from the student ranks possibly as a paid work assignment to help with tuition and other expenses. Outside mentors, graduates or business people might also be involved.
- **GOVERNMENT AND FINANCING:** To fund paid mentors, tuition aid at the universities could become conditioned on participation in mentoring programs or work-study funds could be used. Government assistance with tuition through Pell grants and income-contingent student loans should make it financially possible for the students to attend.
- **PRESIDENTIAL CHALLENGE:** With or without federal funding, the President could still challenge major institutions in major urban areas to become part of this new national mobilization.

#### Optional Model B: Urban School Service Corps

A second potential model involves a much greater commitment of National Service resources to a school that is attempting to become more of a community based service center. In such a model, a team of National Service participants would be engaged not simply to coordinate or facilitate a BEST center, but to assume significant direct service responsibilities. Existing models of such program involve as many as 20 full and part time service corps members, engaged in running after-school recreation and family literacy programs.

The National Service team could be involved in all aspects of such a program from organizing a mentoring program at the school to tutoring and teaching. They could be involved in programming designed to reach out to youth and their family to reinforce messages on pregnancy prevention, responsibilities of parenting and the like. They could also be outstationed at a

university or community organization in partnership with the school to coordinate mentoring activities on behalf of the partner.

#### Optional Model C: Tie to School Based Health Clinics

The Health Security Act proposes the creation of a network of school-based health clinics with the broad mandate to provide comprehensive school health education programs. Among the many issues with which they are supposed to deal is sexual behavior and among the many purposes of the programs is to motivate youth to stay in school, avoid teen pregnancy and strive for success. It is important to the health team that these clinics not be viewed as primarily vehicles for addressing the teen pregnancy. The underlying vision of the BEST centers, though, is obviously closely related to at least part of the vision for the health centers.

This option envisions that the BEST program would be created as an adjunct to a school based health clinic developed in the form envisioned in the Health Security Act. Many direct services would be provided by the clinic, and the clinic could conceivably be the sponsor of the BEST center. The mentoring and partnership would be the enhancements that the BEST program would bring to the clinic. Schools with health clinics willing to take these extra steps could be given extra consideration during the grant process as models of the type of comprehensive, interlinked program we envision.

March 29, 1994

WR -  
TEEN  
PREGNANCY

To: Education and Training Group

From: Gene Sperling

Subject: Urban Excellence Corp

CONNECT  
TO NAT. SERVICE

Draft

As part of our efforts for our economic agenda and our youth opportunity mobilization, I would like to propose a intensive Urban Excellence Corp. This program would fit into our overall economic program and could be a positive side of welfare reform. I do not suggest that all of our Build Essential Skill for Tomorrow proposal for welfare reform be in this intensive form, but I would like to propose that this be a major element.

### I. PROGRAM DESCRIPTION:

**A: SUMMARY:** The basic idea of the UEC is ~~as follows:~~ colleges would reach out to 6th graders and ask them to sign a mutual responsibility contract. The sixth graders and their parents would agree to dedicate themselves to graduating high school and continuing education that follows; the colleges would agree to provide them with individual attention -- mentoring and monitoring -- from 6th grade to 12th grade, and then to place them either in their university -- or in an appropriate advanced training or education program. A main part of the program would be that the colleges would train and deploy a cadre of Mentors who would be paid and would make their main extracurricular/employment activity one-on-one tutoring and mentoring of the young people. This is essence, Eugene Lang incorporated into our university system.

*Presidential Challenge:* While we would have funds available to help carry this out, the President could still challenge major institutions to do this anyway. Certainly, the top private schools in the nation -- located in such urban areas as Boston, New Haven, Philadelphia, Chicago etc -- could do this without major new federal support if it was part of a national -- Presidential -- mobilization effort. A Presidential challenge for 20 universities to do this voluntarily could stir up real support and excitement.

### B: MAIN COMPONENTS OF UEC:

**STUDENTS:** The early contract creates for young people what many more fortunate young people can perceive far more easily: that there is a path that can be traveled with hard work and responsibility that pays off. For a young person who looks around his or her neighborhood and sees little proof that playing by the rules pays off, suddenly there is a tangible proof that it does. A young person who participates in the program must agree to "play by the rules" within the program. That means meeting with the mentors or summer programs. It means avoiding drugs and teen pregnancy.

Nonetheless, I would not kick out of the program anyone who was satisfactorily meeting the academic requirements. Middle class kids don't have to be perfect to have a future; we should be tough on the participants but not kick them out of the program any time they display disruptive behavior.

**MENTORS:** For mentors, the UEC would be not a volunteer activity, but a major commitment -- like being on a sports team. It, therefore, needs to be an important source of tuition assistance and support. The mentors would be paid tuition assistance and extra cash. Pay would increase with each year they were in the program to encourage mentors to stay in the program for multiple years. In other words, if one received 1/5 of tuition the first year, 2/5 the second year etc -- the mentors would have a strong financial incentive to stay in the program which would give the young people more continuity. Despite the fact that this would be "a job" -- it would still be a form of public service -- and the program could benefit many college students who want to give-back something even as they are in college. Thus, while the goal is on the young students, this would be another facet of the President's national service agenda.

**OUTSIDE MENTORS:** Business people, seniors etc, would be solicited for the program. Thus, an ideal situation might be one in which every student had both a student mentor and some form of business or outside role model as well. Yet, the key is that the university -- takes responsibility for continuity, mentoring and monitoring.

**UNIVERSITIES:** The university has the tools, the expertise and the stability to be the institution for such a long-term mentoring and monitoring project. They would be the institution challenged to carry out this project. This would require them working with the local school systems to decide how to do the adoptions of students into the UEC program. They would have to maintain a high quality team of mentors with a financial incentive to make the program a serious commitment. And it would be critical, at all times, that they have a serious, full-time position to run the mentoring team. The success of so many programs hinges on the inspiration and talent of the person who is in charge.

**GOVERNMENT AND FINANCING:** There would be three elements that would require financing. One, funds for the mentors. Two, assistance for the young people to enter college or training. Three, administration of the program. As to paying for the mentors, tuition aid that is now given to students could become conditioned on participation in this program. Work-study money could be used here -- as this would be entirely consistent with the original intention of how work-study would be used. As to tuition for students at the sponsoring institution, they already provide such scholarships. The federal government could provide additional assistance. Mostly, however, the federal government could assist in reciprocity and ensuring that all students received full-tuition somewhere. In sum, there is enough money out there,

that if federal support could be used to fill the gap -- as oppose to pay for everything from scratch.

## **II. RATIONALE FOR THE UEC:**

**A: OVERALL RATIONALE:** The UEC proposal is built around certain basic principles that enjoy support.

**1) EARLY OUTREACH THAT CHANGES EXPECTATIONS:** Early outreach for college opportunity is, of course, important. Yet, if that outreach or intervention is only temporary, it may not have the desired affect. Yet, this is not only early intervention, it is early intervention explicitly designed to change the expectations for young people and the cost-benefit analysis of playing by the rules.

**2) CONTINUITY AND LONG-TERM MONITORING CAN DO MORE TO TURN YOUNG PEOPLE AROUND THEN TEMPORARY INTERVENTIONS:** Certainly, we may not be able to afford such intensive and long-term attention. But, a UEC proposal does assume that there may be a greater return in turning lives around if there is a way for programs to stay with young people for a longer period of time. Also, it may be the case that for people -- who may often be from unstable environments -- stability in this type of empowerment may be particularly important.

**3) INDIVIDUAL MENTORING THAT PROVIDES SUPPORT, ROLE MODELS, AND SIGNALLING TO ESTABLISHED NETWORKS:** I rest more on common sense that data the belief that individual attention helps all people -- but particularly those who are behind or lack the advantages that most young people have.

**4) SIGNALLING, NETWORKING AND ROLE MODELS:** One problem we have discussed is that young people -- particularly economically-disadvantaged minority males -- have a tough time even getting in the door for interviews. This program would potentially give such a young person three people -- the mentor, his or her outside business mentor, and the university administrator -- to be not only role models, but people who can be credible references and offer their own networks.

**5) UNIVERSITIES ARE THE RIGHT INSTITUTIONS TO RUN THIS:** For the reasons mentioned above and below, I believe that this type of long-term project cannot be sustained on a meaningful basis if we count on institutions like businesses and volunteer groups to run it. Colleges are the place that can make it work.

**B: RATIONALE FOR THE UNIVERSITY ROLE:** Much of the UEC is just an extension of the Eugene Lang model. Therefore, it is worth considering the main difference in the UEC -- the primary role of universities.

### **1. COLLEGES INCREASING THE POOL OF COLLEGE READY**

**DISADVANTAGED STUDENTS:** Currently colleges all over America -- including the best colleges -- fight to meet affirmative action goals. The problem with much of this is that it is a zero-sum game. If Stanford meets their affirmative action goals by doing a better job of recruiting than Berkeley, it is good for Stanford -- but there is too much fighting among colleges over the distribution of the existing pool of college-ready minority and disadvantaged students and too little focus on all colleges working to expand the pool of college ready minority and disadvantaged students. I can remember one college in the middle of a major city being criticized for recruiting Puerto Rican students from the best high school in San Juan instead of from the schools in the local city. The college responded that there were not enough college-ready Puerto Rican students in the surrounding city and they should not be criticized for looking else where to achieve admirable diversity. Yet, the real question is why couldn't this excellent school have taken responsibility for reaching young sixth graders in the surrounding area and using their resources to increase the number of Puerto Rican college-ready students in the surrounding area? That is the core of this idea.

### **2. UNIVERSITIES AND LONG-TERM MENTORING AND MONITORING:**

Most people who engage in mentoring or tutoring have a limited, time-specific interaction with a child in need. A disadvantaged child may have a tutor in fifth grade, a Big Brother in eight grade, and a business mentor for six months in tenth grade. Yet, it is fragmented and the hope is that these time specific interventions somehow make a difference -- or trigger. Certainly, everything helps, but for young people who have such odds against them -- and who may lack the support system that many middle class kids are fortunate enough to have.

One solution is to find tutors that will make longterm commitments. This may be impossible when one is simply asking for volunteers. How can one ensure that volunteers stay with the same young people year after year. The best solution is to ensure that there is a stable institution that experiments with many ways to provide longterm mentoring but that ensures that if this fails -- the institution does its best to provide institutional memory and continuity. Thus, a model UEC program might be one where a sixth graders has only two mentors who each mentor for over three years. Yet, if that does not work, the institution is always doing its best to make sure the student has type of individualized attention that fits.

**3. A LESS CONTROVERSIAL MEANS TO AFFIRMATIVE ACTION:** Certainly, historic discrimination often makes it necessary to consider carefully tailored race-conscious remedies. Yet, this is a case where an intelligent approach could

dramatically increase the number of minority students going to college without having to even enter the controversial world of race-conscious approaches. The reason is that our cities have become so segregated that simply reaching out to the poorest areas of the city will lead to disproportionately minorities and whites who live in those areas as well. Such approaches help are race neutral way to help those who live in the poorest areas.

**4. CHANGE THE CULTURE OF UNIVERSITIES:** Colleges now often stand of islands of affluence among some of the most depressed areas of our nation.

Enlightened members of such universities always look for ways the university can interact positively with the community. This is the most natural and productive of such relationships. The President could change the culture of higher education, by creating the expectation that the role of universities was not only to train those who enter their university, but to help increase the pool of college ready students in their area.

good

March 18, 1994

MEMORANDUM FOR WELFARE REFORM WORKING GROUP

FROM: ELEANOR ACHESON LARRY KATZ  
BONNIE DEANE ALICIA MUNNELL  
PAUL DIMOND BOB NASH  
[PETER EDELMAN] BELLE SAWHILL  
BILL GALSTON MIKE SMITH  
SHERYLL CASHIN GENE SPERLING<sup>1</sup>  
ANDREW CUOMO

SUBJECT: TEEN PREGNANCY PREVENTION/A NATIONAL MOBILIZATION  
FOR YOUTH OPPORTUNITY AND RESPONSIBILITY --  
Putting Children First

President William Jefferson Clinton  
Talk with Students at Kramer Junior High  
February 3, 1994:

"Don't give up on yourselves, and don't give up on your country....I don't want you ever to give up on yourselves. I don't intend to give up on you as long as I am President. I'm going to keep working for better education, safer streets, and a brighter jobs future...But it's your life. No matter what I do, I can't live your lives for you....You have to do that....You've got to decide what happens to you..., to say, 'I am going to do the most I can with my life...'  
I'll try to keep up my end of the deal, and I want you to keep up yours."

Q. "Since family life has been breaking down for the past 30 years, what can my generation do to restore family values?"

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<sup>1</sup> This draft is the product of the series of interagency discussions in which we have all participated over the past year and the diverse ways in which we have all been engaged in developing and implementing the President's message of opportunity and responsibility through a wide variety of initiatives. Building off of the research of the Prevention Issue Group and the specs for the Working Group Paper, we have also had a series of more focussed discussions and conversations over the past week on how the proposed teen pregnancy prevention and parental responsibility components might provide a foundation for a National Mobilization for Youth Opportunity and Responsibility. This draft seeks to capture the common ground of these discussions. Due to the time constraints, however, this draft has not been reviewed fully by the signers whose names appear in brackets; and it does not represent the official view of any Agency or Department.

A. "The first thing you can do is make up your mind you're not going to have a baby until you are old enough to take care of it, until you're married....Second..., we need to organize, starting about this age, young men to start talking among each other about what their responsibilities are, and that they should not go out and father kids when they're not prepared to marry the mothers, they're not prepared to take responsibility for the children, and they're not even able to take responsibility for themselves. This is not a sport....We've got to make a decision. Every one of you has to make a decision. Is it right or wrong, if you're a boy, to get some girl pregnant and then forget about it? I think it's wrong....If you really want to rebuild the family, then people have to decide: I'm not going to have a baby until I'm married. I'm not going to bring a baby into the world I can't take care of. And I'm not going to turn around and walk away when I do it. I'm going to take responsibility for what I do."

## Introduction

One of the most important goals of welfare reform is to reduce poverty for children. To do so will require a reduction in the number of children born to never-married mothers and abandoned by their fathers. Cases headed by unwed mothers accounted for about four-fifths of the growth of 1.1 million in the welfare rolls over the past ten years, from 3.86 million families in 1983 to 4.97 million families in 1993. Beginning in 1990, the rate of children on AFDC born to never-married mothers accelerated dramatically.

Teenage pregnancy is a particularly troubling aspect of this problem. A recent Annie Casey Foundation statistical report placed the tragedy of poverty for children born to children in perspective:

- Almost 80% of the children of young persons who have a child before they graduate from high school, outside of marriage, and while a teenager are living in poverty.
- In contrast, less than 8% of the children of young persons who defer child-bearing until they have graduated from high school, are twenty years old, and married are living in poverty.

This economic reality holds true across racial lines as well. A minority family headed by a married couple averages three times the household income of a household headed by a single white mother.

The simple truth is that adolescents who bring children into the world face a very difficult time getting themselves out of

poverty, while young people who graduate from high school and defer child-bearing until they are mature, married and able to support their offspring are far more likely to get ahead.

The consequences for the offspring are equally clear. Both parents bear responsibility for providing emotional nurture, moral guidance, and material support. Teenagers who bring children into the world are not yet equipped to discharge this fundamental obligation. This is a bedrock issue of character and personal responsibility.

If we wish to reform welfare and put children first, we must find more effective ways of discouraging pregnancy by young parents who cannot properly raise their children. Building on the solid foundation laid by the Welfare Reform Working Group to date, this memorandum offers preliminary proposals to promote this objective.

In brief, we recommend: (1) an attack on teen pregnancy within the framework of a National Mobilization for Youth Opportunity and Responsibility, inspired by the President; (2) clear, specific goals to guide this effort; (3) an institutional structure to support the mobilization and its diverse functions; and (4) two sets of opportunity and responsibility components, one that extends to all young people, schools and communities and a second that is targeted to areas experiencing the greatest risk.

### Basic Principles

Our proposals reflect a handful of basic principles:

- An effective approach to teen pregnancy must get past the polarizing debates of the past decade -- by combining an emphasis on increased personal responsibility with a focus on enhanced opportunity.

- Discouraging teen pregnancy will require changes in the incentive structure young people face, the cultural influences that shape their lives, and the perceptions of both.

- An effective teen pregnancy effort must begin with pre-teens, focus initially on the young people who are most at-risk, and emphasize school-based, school-linked activities and complementary community action.

- Because teen pregnancy prevention must be pursued comprehensively, it will require coordination of government activities across program, agency and department lines and between welfare reform and parallel reform efforts in areas such as criminal justice, violence, drugs, housing, and education.

- Teen pregnancy prevention demands nothing less than a national mobilization, catalyzed by public sector action and including the broadest possible participation from the private and voluntary sectors, including religious leaders and institutions.

- While national leadership is essential, the success of any national mobilization turns on the commitment, innovation and concerted action of local schools, communities, and families all across the country.

- Older teens and young adults who are succeeding in college, on the job or in business must be major participants and important role models in any effective effort to prevent teen pregnancy.

Teen pregnancy prevention should be understood as part of the Administration's overall effort to improve life prospects for our young people by attacking the principal sources of constricted opportunity, including: dropping out of high school; substance abuse; violence; teen pregnancy; absence of stable relationships with caring, competent adults; media messages damaging to young people; inadequate job prospects; and an overall climate of narrowed horizons and hopelessness. Teen pregnancy prevention and parental responsibility must also become a shared value in every family, school and community. Final responsibility, however, rests ultimately with each young person.

#### **National Mobilization for Youth Opportunity and Responsibility**

##### **1. Theme: Putting Children First**

The proposed campaign would help all youth understand the rewards of staying in school, playing by the rules, and deferring child-bearing until married, able to support themselves and nurture their offspring.

This broad theme confronts the specific irresponsibility of "children having children." But it offers a larger, affirmative message to youth as well: if you want to succeed in life for yourself and for your children, take responsibility for seizing the opportunity to learn, to graduate from high school, to enter college or the labor market, to defer child-bearing until you are married and both parents can work together as a family to achieve a better life for yourselves and your children.

We recommend this broader theme for three reasons.

- It reinforces the message of economic opportunity and personal responsibility that the President is shaping for young people and for the entire country--as exemplified, for example,

in the President's discussion with the students at Kramer Junior High School.

- It enables us to discuss the nature and scope of the increased opportunities that the Clinton Administration is offering to get ahead, as well as the nature of the severely reduced lifechances resulting from teen pregnancy.

- It enables us to tie together--in a coherent and compelling way--a number of related prevention or responsibility programs (related, for example, to crime, violence and drugs in the Crime Bill and child support in Welfare Reform) with opportunity initiatives in areas such as education, school-to-work, job training, community empowerment and reinvestment, and national service.

## 2. Presidential Leadership

The proposed mobilization will require both (a) focussed, interagency coordination within the federal government and (b) a truly national effort with broad-based private support. It requires -- and warrants -- vigorous presidential leadership.

In events such as his appearance at Kramer Junior High School, the President has effectively communicated a message of character and hope, personal responsibility and economic opportunity to young people. It is a message that resonates with people of all ages, races and circumstances throughout the country. It brings the broader theme of economic opportunity and personal responsibility directly to every family and community. It should be driven home, not only as a part of a persuasive media campaign, but also through a series of dramatic presidential events as his schedule permits and a presidentially inspired national mobilization.

This mobilization would also give the President an opportunity to talk about a topic of central concern to the parents of this country: the role of the media--especially television--in sending young people damaging messages about sexual conduct, impulse control, and violence.

## 3. Goals

Initial goals must be established to define the mission and to guide the mobilization. These goals must speak to the individual, while providing a focus for longer term changes in national outcomes. These goals should capture the common ground of the broader opportunity and responsibility message for teen pregnancy prevention. We suggest four pairs of goals for the individual and the nation --

- Individual: Graduate from high school  
Nation: 90% of all students graduate from high school by the year 2000
- Individual: Defer pregnancy until graduated from high school, married, and at least one parent is in the work force  
Nation: increase the percentage of children born to parents who have graduated from high school, are married and have at least one parent in the work force from % to % by the year 2000
- Individual: Seize the post-secondary opportunities to go on to college, from school-to-work, to enter the labor market, and to continue to work, earn, and learn for life  
Nation: increase the percentage of persons age 18-to-25 in school, on the job or in the military from % to % by the year 2000
- Individual: Accept responsibility for the support of each child that you parent  
Nation: increase the percentage of parents who provide support and nurture for their children from % to % by the year 2000

#### 4. Structure and Activities

The President would organize the diverse activities of the national mobilization around two complementary, national institutions -- a private, not for profit entity; and a federal interagency coordinating group.

The not-for-profit, non-partisan entity -- the Partnership for Youth Opportunity and Responsibility -- could be formed by a group of Americans committed to the goals and mission of the President's national mobilization. The initial Co-Chairs and Directors could be selected by the President; and the mission, charter, articles of formation would embrace the goals and object of the mobilization. The membership could include selected representatives from youth organizations, voluntary and religious institutions, community groups, sports and entertainment, and elected national, state, and local leaders.

Funds for the Partnership would be raised privately, and it would assume primary responsibility for a national, state, and local mobilization in the media, in the schools, in the churches, in the communities, and in the homes. Any campaign of communication could include the President's conversation with the Kramer Junior High School students as a starting point. The Partnership could also provide support -- money, networking, technical advice,

spirit -- to state and local responses to the federal challenge grants described below. It could also consider the chartering of state and local counterparts and/or networking with national, state and local organizations, associations and constituency groups with common goals and a shared mission.

The primary duties of the federal interagency group would include:

- assuring the creation of a responsive information clearinghouse with model programs, evaluations, information, curricula, and an on-line network
- providing a focal point for coordinating, or combining, a range of federal programs across program and departmental lines;
- as described below, coordinating a challenge grant process to targeted communities with youth at the most risk of teen pregnancy.

This federal interagency coordinating group could be the Ounce of Prevention Council proposed in the Crime Bill, the Community Enterprise Board, or other entity created by presidential directive.

Both the private Partnership and the interagency coordinating group should work in close cooperation with the complementary ties, programs, and participants in the National Service.

## 5. Opportunity and Responsibility Initiatives

### a. General -- Applicable to all young people

Components of the National Mobilization applicable to all youth could include:

#### -- Opportunity:

- Regardless of personal or family wealth, learning in middle and high school will qualify all students who achieve to go on to college or school-to-work, to enter the labor market and use effective job-changing tools, and to access lifelong learning
- EITC, Health Care, and Child Care for the working poor will assure that all working families -- but particularly young, two parent families -- are able to meet their responsibility to nurture and support their offspring and to lift the entire family out of poverty through work. Work can then pay for all young Americans: for example, a young couple with two

children that work in entry-level jobs for the minimum wage for a combined total of 60 hours per week will earn over \$18,500 a year with the EITC. Equally important, this base of income and family support will enable all young families -- over time -- to learn and to earn more to make a better life for themselves and for their children.

- Paths to rising productivity, better earnings, and a more rewarding family life will be available in the new economy for all young people -- and for their children -- who learn in school, work harder and smarter on the job, earn and save, and marry and bear children.

-- Responsibility:

- No separate household for minor mothers.
- Minor mothers must stay in school.
- [Family Cap].
- No dead-beat dads [e.g., mandatory paternity and minimum support for non-custodial parents; state option to enforce support through mandatory work programs for non-custodial parents; stricter collection and enforcement of support throughout minority of offspring, including scheduled payment of arrearages, wage withholding, etc].<sup>2</sup>

b. Specific -- Initiatives Targeted to At-Risk-Youth

The targeted initiatives in this section should be understood as a part of a larger strategy to promote opportunity and responsibility in areas that are most at risk. They may also provide ways to combine elements of other targeted strategies, as well as to supplement the broader message of opportunity and responsibility for all youth. The initial focus of the targeted initiatives could be the approximately 1000 high poverty middle and high schools with at-risk students, which we propose to reach through a federal challenge grant process.

By the year 2000 the goal of such targeted challenge grants is to catalyze the development of a national network (1) of school-linked, community-based teen resource and responsibility centers

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<sup>2</sup> The policy choices in brackets are the subject of options and discussion in the Welfare Reform Working Group paper. In this draft, we therefore express no view on the diverse options.

and (2) institutional, Be the BEST You Can Be Partnerships with a "million mentors" serving as coaches and tutors for millions of otherwise at-risk youth.

For at-risk youth who are now isolated from hope and opportunity, these challenge grants offer a way of establishing both a supportive network of responsible and caring adults and, over time, an informal structure for connecting these young people with colleges and the labor market. The resulting mix of real opportunities and personal responsibility holds promise of increasing high school graduation rates, reducing early childbearing out of wedlock, increasing children born to young married couples, and increasing the numbers of otherwise at-risk youth who succeed in college or the labor market.

-- Responsibility: Teen Pregnancy Prevention. School-linked, community-based challenge grants under existing or pending legislation for:

- \* individual and group education for adolescents, focusing on abstinence, plus family planning; the harm to lifechances of bearing children while a teen, before graduating from high school and marriage; the responsibility of both fathers and mothers who bear or beget babies to nurture and support their children; the obligations of mutual respect owed to peers of the opposite sex; and the support adolescents need to say "no" to demands for premature sexuality.

- \* childhood and early adolescent reproductive health information and responsibility resource centers (including dangers of early sex, risks of sexually transmitted disease and AIDS, harm to infants of low interval second birth)

-- Opportunity: Be the B.E.S.T. You Can Be Partnerships for Disadvantaged Youth--Building Essential Skills for Tomorrow. Challenge grants with federal "glue money" targeted to the middle and high schools in high-risk areas:

- \* to form long-term, institutional partnerships between targeted schools and broad-based consortia of employers, community-based organizations and community police, churches, associations, mentoring groups and colleges and universities;

- \* to encourage the development of middle and high schools as community centers, with after-school activities for teams of young people through the afternoon and evening;

- \* to establish long-term mentoring, tutoring and coaching relationships between participants from consortia, college students, and National Service with teams of students in targeted schools in grades 5-12;

- to provide education, training, and support that young people need to take responsibility for their own lives--to stay in school and learn, to avoid drugs, violence, and pregnancy before marriage, to respect themselves and one another, and to act respectfully across gender lines;

- to encourage hope for the future by giving young people solid, credible information about opportunities to achieve through learning, to go to college or school-to-work training, to enter the labor market, to become entrepreneurs, and to provide for themselves and their children.

Both the responsibility and opportunity challenge grants could be rolled out over five years to clusters of targeted schools (e.g., in LEA's, SEA's, regional service areas) and the local consortia and colleges. We need to make sure that existing (or proposed) federal financing sources could be brought together to provide the federal "glue money" to support such a roll-out to the targeted schools.

The key to the success of these targeted components is not the amount of federal money set aside to stimulate the challenge. Rather, it is:

- the breadth of the institutional buy-in (e.g., colleges, Chamber, NAB, PIC, Churches and other voluntary associations like YMCA-YWCA, sororities and fraternities, Girls and Boys Clubs, 4-H Clubs, Future Farmers and Junior Achievement, Big Brother-Big Sister, Police Athletic Leagues, AARP-Senior Citizens)
- the scope of the personal and group relationships (coaching, mentoring, recreational and learning experiences)
- the extent of the commitment, support, spirit and innovation reflected in the local applications.

Although more effective coordination and use of existing public resources are obviously important, the key factor to success will be the extent to which we can use the challenge grants to leverage meaningful partnerships and responses for targeted schools and community consortia across the country.

In all of these targeted efforts, older teens and young adults who are succeeding in school, on the job or in business can be major participants and important role models for their younger peers.

**Conclusion**

The President has invited all Americans to join in seizing the greater opportunities and in meeting the greater challenges of the new, globally competitive economy that confront us in the post-cold war era. Our ability to embrace this change in the years to come depends on building the skills and productivity of our workforce. We cannot succeed unless the young people of America join in this effort.

A President's National Mobilization for Youth Opportunity and Responsibility provides more than just an effective vehicle for teen pregnancy prevention. It offers a larger promise to each young person: if you meet your responsibilities, you and your children will have a real opportunity to join in the historic crossing to the greater rewards of the 21st century.

# CHILD TRENDS, INC.

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January, 1994

JAN 19 1994

TO: Individuals and Organizations Concerned About Teenage Pregnancy and Childbearing

FROM: Kristin A. Moore, Ph.D.

SUBJECT: Release of *Facts at a Glance*, reporting 1991 data on teen fertility in the United States

The most recent data on births among adolescents indicate that the teen birth rate in 1991 continued the rise that began in the latter years of the 1980s. Between 1986 and 1991, the rate of births to teens aged 15-19 rose 24 percent, from 50.2 to 62.1 births per 1,000 females aged 15-19.

This increase in the birth rate has occurred among both younger and older teens, and in nearly all states. Increases have been largest among Hispanic teens, though the birth rate has risen since 1986 among non-Hispanic white and African American teens as well.

Several explanations for this surprising trend have been offered, including a declining use of abortion among teens in some states, lesser availability and greater cost associated with obtaining contraceptive services, decaying life circumstances in some communities, and immigration of Hispanics and other relatively high fertility sub-groups in some areas.

This fact sheet has not been copyrighted and may be reproduced and disseminated to any persons or organizations that might benefit from the information. A list of references is available upon request. Additional information for your own state or local area can be obtained from your state vital statistics office.

A microcomputer data file providing state data for 1991 and previous years and another file providing detailed national data are available from Child Trends (\$25 for one and \$35 for both). These files are designed for use on a microcomputer with LOTUS 1-2-3 software. Files can be ordered or further information can be obtained by writing or faxing Child Trends.

If this fact sheet has reached an inappropriate office, please forward it to the appropriate person. If you would like to be added to our list of more than 6,000 persons who receive *Facts at a Glance*, or if you would like to have an address corrected or deleted, please write to me at our new address, as shown on this letterhead.

This informational effort is funded by the Charles Stewart Mott Foundation of Flint, Michigan

# FACTS FACTS FACTS

## AT A GLANCE

January, 1994

### BIRTH RATE TRENDS

- For the fifth consecutive year, the birth rate among U.S. teens has increased. From a low of 50 births per thousand females 15-19 in 1986, the rate rose to 62 in 1991.

Birth Rate: Births Per 1,000 Females, by Age

Age:	1970	1975	1980	1985	1986	1987	1988	1989	1990	1991
15-17	39	36	33	31	31	32	34	36	38	39
18-19	115	85	82	80	80	79	80	84	89	94
15-19	68	56	53	51	50	51	53	57	60	62

- The birth rate is highest among black teens; however, the recent increase in the teen birth rate has been particularly large among Hispanic youth.

Birth Rate: Births Per 1,000 Females Aged 15-19, by Race/Ethnicity

Race/Ethnicity	1980	1986	1989	1990	1991
Hispanics	82	80	91	100	107
Non-Hispanic Blacks	105	104	112	116	118
Non-Hispanic Whites	41	36	40	43	43

Note: 1980 data reported for 22 states, accounting for 90% of Hispanic births; 1986 data are for 30 states and DC; 1989 data are for 47 states and DC; 1990 data are for 48 states and DC; 1991 data are for 49 states and DC.

- U.S. women vary substantially in the timing of their first birth. A study of females 15-44 in 1988 found that one-quarter had a first birth by 21.1 years of age; half had a first birth by age 26.0; and three-quarters had a first birth by age 32.4.
- The pace of childbearing varies by race and ethnicity. Among U.S. females 15-44 in 1988, one quarter of blacks have had a first birth by 18.7 years of age, while a quarter of Hispanics have had a child by 19.6 years of age, and a quarter of non-Hispanic whites have had a child by 22.1 years of age.
- Teenage mothers are more likely to have daughters who have babies as teens themselves. Among mothers in the National Survey of Children who were 19 or younger when they first became mothers, half of those with daughters had at least one daughter who became a teen parent, compared with one in four mothers who were at least 20 when they had their first child.

### NON-MARITAL BIRTHS

- The number of non-marital births to teens has quadrupled since 1960, while the number of marital teen births has declined substantially.

Births to Females Under Age 20, by Marital Status

	1960	1965	1970	1975	1980	1985	1991	
Married	502,046	469,462	456,560	361,380	290,529	197,397	163,140	- down 7%
Unmarried	91,700	129,200	199,900	233,500	271,801	280,308	368,451	- quadrupled since 1960
Total	593,746	598,662	656,460	594,880	562,330	477,705	531,591	- down 10%

- Among unmarried teens who gave birth in the mid-1980s, about one in five were cohabiting (living with a partner).
- On average, for women there are 7 years, and for men 10 years, between first intercourse and marriage.

- In 1991, 69 percent of the births to mothers 19 or younger occurred to unmarried mothers, compared with 30 percent in 1970. The proportion of births occurring outside of marriage has also risen substantially among older women. Thirty-nine percent of births to women aged 20-24 occurred outside of marriage in 1991, compared to 9 percent in 1970.

Percent of all Births Occurring to an Unmarried Mother by Age

Age:	1970	1980	1985	1986	1987	1988	1989	1990	1991
< 20	30	48	59	61	64	66	67	68	69
20-24	9	19	26	29	31	33	35	37	39

- The total number of non-marital births to women of all ages in the U.S. has risen markedly over time: from 89,500 in 1940, to 141,600 in 1950, to 224,300 in 1960, to 398,700 in 1970, to 665,700 in 1980, to 1,165,400 in 1990 and 1,213,800 in 1991.
- As non-marital childbearing has become more common among older U.S. women, the proportion of all non-marital births accounted for by teens has declined. In 1970, 50% of all non-marital births occurred to mothers aged 19 or younger, in 1991, 30% of all non-marital births were to mothers 19 or younger.
- The perception that unmarried mothers are well-educated career women is not supported by Census data. Among never-married mothers aged 18-44 in 1992, only 5% were college graduates; 21% had completed some college; 40% had a high school diploma; and 34% had not completed high school. Moreover, 43% were neither working nor looking for work; and only 5% were employed in managerial or professional occupations.
- It is frequently contended that the availability of AFDC benefits provides an incentive for early or non-marital childbearing. Research on this question is inconclusive. A few studies show associations between higher benefit levels and fertility; more often, studies show no effects or effects that are small relative to other factors such as school failure, peer influences, parental monitoring, and aspirations for achievement.

#### ARE BIRTHS TO TEENS WANTED?

- Most youths view teenage parenthood negatively. Four out of five youths 18-22 in the 1987 National Survey of Children agreed that becoming a teen parent is one of the worst things that could happen to a 16-year-old girl or to a 16-year-old boy.
- Only 15 percent of the births to school-age mothers (age 17 and younger) are described by the teen as having been wanted at that time, compared with a third of the births to 18-19 year-old mothers. Even among mothers aged 20-24, only 55 percent report they wanted to have a baby at the time they did, according to the 1988 National Survey of Families and Households.
- While few teens *want* to become parents, ambivalence is common. In a study of Baltimore inner city teens obtaining pregnancy tests, only one in twenty indicated that they definitely wanted to become pregnant; nearly half were unequivocally negative; however nearly half expressed *ambivalence*, both about pregnancy and about sex and contraception. Ambivalent teens were just as likely to have a baby during the next two years as teens who unequivocally wanted a child.

#### REPRODUCTIVE HEALTH CARE SERVICES

- A recent survey of health and social services agencies suggests that Medicaid has replaced Title X as the primary source of funding for contraceptive services; between 1980 and 1992, total public expenditures for contraceptive services declined by 27%, adjusted for inflation.
- Among state-level family planning administrators, virtually all administrators report that funding for family planning falls short of service needs; 85% of all administrators feel that funding falls far short of the need for family planning services.
- Both family planning clinic personnel and state administrators report that, in response to reductions in funding for family planning during the past decade, they have charged higher fees and sought other sources of funding, let staff go, held down salaries, reduced hours, closed clinics, cut back some services, and reduced education and outreach efforts.

TABLE 1: NUMBER OF BIRTHS IN 1991 TO MOTHERS

	NUMBER OF BIRTHS TO MOTHERS AGED:				BIRTHS TO MOTHERS		OF ALL	OF ALL FIRST	NUMBER OF
	Under 15	15-17	18-19	Total	UNDER AGE 20:		BIRTHS TO	BIRTHS IN	BIRTHS TO
				Under 20	White*	Black*	MOTHERS UNDER	STATE, %	HISPANIC**
							AGE 20, %	TO TEENS	TEENS
							NONPARITAL		
ALABAMA	328	4,202	7,070	11,600	5,770	5,791	65%	32%	50
ALASKA	17	395	820	1,232	721	69	67%	22%	56
ARIZONA	192	3,728	6,194	10,114	8,321	621	75%	29%	4,342
ARKANSAS	179	2,493	4,387	7,059	4,489	2,511	60%	35%	66
CALIFORNIA	1,469	25,950	44,492	71,911	59,558	8,436	58%	23%	41,412
COLORADO	107	2,234	4,025	6,366	5,485	680	68%	22%	2,284
CONNECTICUT	95	1,465	2,438	3,998	2,773	1,166	84%	14%	1,279
DELAWARE	50	486	834	1,370	681	675	81%	22%	82
DISTRICT OF COLUMBIA	97	856	1,093	2,046	43	1,895	95%	30%	114
FLORIDA	755	9,737	16,463	26,955	15,630	11,316	73%	24%	3,490
GEORGIA	553	6,841	11,055	18,449	8,654	9,689	72%	28%	371
HAWAII	29	707	1,366	2,102	389	59	74%	20%	415
IDAHO	20	724	1,497	2,241	2,163	9	50%	29%	335
ILLINOIS	652	9,038	15,624	25,314	13,564	11,532	81%	24%	4,237
INDIANA	214	4,095	8,053	12,362	9,641	2,670	72%	27%	333
IOWA	43	1,278	2,766	4,087	3,685	329	74%	22%	141
KANSAS	68	1,433	3,101	4,602	3,686	790	68%	24%	414
KENTUCKY	204	3,342	5,911	9,457	8,034	1,395	53%	31%	23
LOUISIANA	447	4,802	7,484	12,733	5,112	7,520	75%	33%	96
MAINE	16	567	1,238	1,821	1,780	7	75%	20%	12
MARYLAND	261	2,966	4,981	8,208	3,534	4,564	79%	18%	218
MASSACHUSETTS	122	2,519	4,377	7,018	5,454	1,334	86%	14%	1,773
MICHIGAN	414	6,773	12,632	19,819	11,351	8,184	69%	25%	908
MINNESOTA	94	1,749	3,596	5,439	4,076	684	82%	16%	270
MISSISSIPPI	317	3,670	5,392	9,379	3,396	5,906	75%	39%	17
MISSOURI	204	3,912	7,209	11,325	7,597	3,634	72%	27%	185
MONTANA	12	402	909	1,323	1,014	5	72%	25%	42
NEBRASKA	36	761	1,568	2,365	1,917	341	74%	21%	187
NEVADA	44	962	1,836	2,842	2,210	496	68%	24%	603
NEW HAMPSHIRE	8	335	821	1,164	1,150	7	76%	14%	--
NEW JERSEY	244	3,685	6,216	10,145	5,366	4,675	84%	15%	2,639
NEW MEXICO	70	1,695	2,823	4,588	3,790	136	74%	34%	2,652
NEW YORK	598	9,586	16,645	26,829	16,656	9,809	81%	17%	7,768
NORTH CAROLINA	406	6,004	10,128	16,538	8,514	7,554	71%	27%	262
NORTH DAKOTA	6	235	534	775	580	7	75%	20%	11
OHIO	423	7,875	14,846	23,144	16,176	6,836	76%	26%	564
OKLAHOMA	167	2,733	5,307	8,207	5,621	1,431	58%	32%	381
OREGON	67	1,765	3,375	5,227	4,733	257	69%	24%	674
PENNSYLVANIA	428	6,348	11,506	18,282	12,098	6,007	83%	20%	1,447
RHODE ISLAND	31	506	902	1,439	1,129	227	85%	17%	238
SOUTH CAROLINA	272	3,569	5,946	9,787	4,426	5,326	73%	30%	83
SOUTH DAKOTA	13	395	797	1,205	792	6	75%	25%	12
TENNESSEE	299	4,712	8,156	13,167	8,461	4,635	64%	30%	65
TEXAS	1,246	18,653	30,935	50,834	39,872	10,554	39%	30%	23,910
UTAH	45	1,275	2,554	3,874	3,652	26	50%	24%	455
VERMONT	5	225	514	744	732	4	72%	19%	2
VIRGINIA	265	3,648	7,242	11,155	6,294	4,725	71%	20%	375
WASHINGTON	156	2,907	5,583	8,646	7,386	589	70%	21%	1,289
WEST VIRGINIA	52	1,272	2,628	3,952	3,733	213	56%	32%	9
WISCONSIN	145	2,439	4,831	7,415	4,798	2,233	81%	20%	442
WYOMING	9	277	651	937	861	10	58%	29%	102
U.S. TOTAL	12,014	188,226	331,351	531,591	357,548	157,375	69%	24%	107,135

\*Births are reported by the National Center for Health Statistics by race of mother, not race of child as done prior to 1989.

\*\*Hispanic persons may be of any race.

Source: Unpublished data from the National Center for Health Statistics, Department of Health and Human Services; forthcoming in *Vital Statistics of the United States, 1991, Vol. 1, Natality*.

TABLE 2: BIRTH RATES FOR TEENS 15-19 IN 1980 AND 1985-1991 AND FOR TEENS 15-17 AND 18-19 IN 1991

	BIRTH RATES (BIRTHS per 1,000) TO TEEN MOTHERS AGED 15-19								BIRTH RATES (BIRTHS per 1,000) AGE 15-17      AGE 18-19	
	1980	1985	1986	1987	1988	1989	1990	1991	1991	1991
ALABAMA	68	64	62	61	63	69	72	74	48	110
ALASKA	64	56	53	56	55	64	65	78	48	111
ARIZONA	65	67	67	68	69	70	76	81	51	123
ARKANSAS	75	73	71	70	72	78	80	80	49	123
CALIFORNIA	53	53	53	54	58	64	71	75	47	114
COLORADO	50	48	47	48	49	52	55	58	35	91
CONNECTICUT	31	31	31	33	35	38	39	40	26	60
DELAWARE	51	51	50	52	53	56	55	61	40	87
DISTRICT OF COLUMBIA	62	72	69	67	76	90	97	114	103	125
FLORIDA	59	58	58	59	62	67	69	69	44	103
GEORGIA	72	68	67	67	68	74	76	76	51	111
HAWAII	51	48	47	49	49	54	61	59	35	91
IDAHO	59	47	45	45	47	48	50	54	29	91
ILLINOIS	56	51	50	51	54	60	63	65	41	99
INDIANA	57	52	50	49	52	55	59	60	35	95
IOWA	43	35	33	33	34	40	41	43	23	71
KANSAS	57	52	51	50	51	53	56	55	29	94
KENTUCKY	72	63	61	60	61	66	68	69	43	106
LOUISIANA	76	72	68	67	68	71	75	76	51	111
MAINE	47	42	42	39	41	42	43	44	24	71
MARYLAND	43	46	46	47	50	53	54	54	35	80
MASSACHUSETTS	28	29	29	30	32	36	36	38	25	53
MICHIGAN	45	43	44	45	47	54	60	59	35	91
MINNESOTA	35	31	30	31	31	34	36	37	21	61
MISSISSIPPI	84	76	72	70	74	80	82	86	60	120
MISSOURI	58	54	53	53	55	60	63	65	39	101
MONTANA	48	44	42	42	40	42	48	47	24	83
NEBRASKA	45	40	37	37	39	40	42	42	24	69
NEVADA	59	55	56	57	64	69	73	75	44	120
NEW HAMPSHIRE	34	32	31	33	33	34	34	33	17	54
NEW JERSEY	35	34	34	36	38	41	41	42	26	63
NEW MEXICO	72	73	70	71	72	75	78	80	50	124
NEW YORK	35	36	36	37	40	42	44	46	29	69
NORTH CAROLINA	58	57	56	57	61	66	68	71	46	102
NORTH DAKOTA	42	36	35	32	32	31	36	36	18	62
OHIO	52	50	49	49	52	55	58	61	36	94
OKLAHOMA	75	69	65	63	64	67	67	72	42	115
OREGON	51	43	43	46	48	52	55	55	31	91
PENNSYLVANIA	41	40	40	39	41	45	45	47	29	70
RHODE ISLAND	33	36	35	35	38	40	45	45	30	63
SOUTH CAROLINA	65	63	61	61	65	69	72	73	48	106
SOUTH DAKOTA	53	46	43	46	46	48	47	47	26	79
TENNESSEE	64	61	60	61	64	69	73	75	48	112
TEXAS	74	72	70	68	69	72	76	79	50	119
UTAH	65	50	49	47	46	47	48	48	27	80
VERMONT	39	36	34	30	34	35	35	39	21	63
VIRGINIA	48	46	45	45	45	51	53	53	32	81
WASHINGTON	47	45	44	45	47	50	53	54	31	87
WEST VIRGINIA	68	54	53	51	50	55	58	58	32	93
WISCONSIN	40	39	38	37	38	41	43	44	25	71
WYOMING	79	59	50	47	49	50	56	54	26	98
U.S. TOTAL	53	51	50	51	53	57	60	62	39	94

Sources: Denominators for the 1985-1991 rates use modified data from the U.S. Bureau of the Census. Denominators for July 1990 and 1991 were provided by the Population Estimates Branch of the U.S. Bureau of the Census. Birth data are provided by the National Center for Health Statistics, Department of Health and Human Services. 1991 data are forthcoming in *Vital Statistics of the United States, 1991, Vol. 1, Natality*.

TABLE 3. BIRTHS TO TEENAGE MOTHERS IN LARGE U.S. CITIES IN 1991

City	Of All Births in City, % to Mothers				Births to Unmarried Teen Mothers			Of all Births to Mothers Under Age 20, Percent Nonmarital	Number of Births to Teens	
	Total Under 20	17 and Younger	Ages 18-19	Under Age 20	Total Under 20	17 and Younger	Ages 18-19		White	Black
AKRON, OH	711	280	431	18%	618	263	355	67%	311	389
ALBUQUERQUE, NM	1,045	409	635	14%	830	365	464	79%	938	51
AMARILLO, TX	564	207	357	19%	399	101	98	35%	493	64
ANAHEIM, CA	820	289	531	12%	541	219	322	66%	776	23
ANCHORAGE, AK	484	158	326	10%	327	128	199	68%	320	48
ARLINGTON, TX	514	175	339	10%	191	74	117	37%	418	83
ATLANTA, GA	1,878	878	1,000	21%	1,785	856	929	95%	147	1,725
AURORA, CO	462	173	289	11%	337	156	181	73%	303	143
AUSTIN, TX	1,308	539	769	15%	495	240	255	38%	948	343
BAKERSFIELD, CA	1,285	527	758	17%	957	455	602	74%	1,099	172
BALTIMORE, MD	2,870	1,313	1,557	21%	2,515	1,195	1,320	88%	495	2,365
BATON ROUGE, LA	770	318	452	15%	643	299	344	84%	171	596
BIRMINGHAM, AL	975	423	552	21%	853	395	458	97%	115	859
BOSTON, MA	1,107	468	639	11%	1,018	446	572	92%	403	685
BRIDGEPORT, CT	532	230	302	18%	470	213	257	88%	317	208
BUFFALO, NY	1,079	490	589	17%	976	472	504	90%	423	639
CHARLOTTE, NC	1,060	464	596	14%	933	438	495	88%	278	757
CHATTANOOGA, TN	628	250	378	23%	518	234	284	82%	245	382
CHESAPEAKE, VA	344	115	229	13%	253	103	150	74%	154	190
CHICAGO, IL	11,482	4,878	6,604	19%	10,170	4,590	5,580	89%	3,551	7,827
CINCINNATI, OH	1,473	628	845	21%	1,336	603	733	91%	466	998
CLEVELAND, OH	2,297	902	1,395	20%	2,073	858	1,215	90%	797	1,488
COLORADO SPRINGS, CO	702	228	474	12%	415	195	220	59%	563	117
COLUMBUS, GA	653	253	400	21%	503	224	279	77%	247	405
COLUMBUS, OH	1,745	687	1,078	18%	1,429	603	828	82%	899	619
CORPUS CHRISTI, TX	871	346	525	18%	257	113	144	30%	817	48
DALLAS, TX	3,937	1,683	2,254	18%	2,605	1,252	1,353	68%	2,068	1,818
DAYTON, OH	880	334	466	22%	703	319	384	88%	299	501
DENVER, CO	1,431	585	846	18%	1,122	502	620	78%	1,023	356
DES MOINES, IA	531	216	315	14%	445	202	243	84%	416	94
DETROIT, MI	5,491	2,282	3,309	24%	5,169	2,167	3,002	32%	607	4,946
EL PASO, TX	2,171	829	1,342	18%	800	384	438	37%	2,111	53
FLINT, MI	785	338	447	22%	501	249	252	64%	284	498
FT. LAUDERDALE, FL	624	268	356	15%	550	247	303	88%	141	480
FORT WAYNE, IN	606	212	394	18%	505	200	305	83%	352	239
FORT WORTH, TX	1,569	666	903	17%	696	365	331	44%	952	597
FREMONT, CA	191	73	118	6%	131	60	71	59%	147	23
FRESNO, CA	1,817	798	1,021	17%	1,249	592	657	69%	1,254	218
GARDEN GROVE, CA	374	135	239	11%	231	102	129	62%	322	4
GARLAND, TX	423	150	273	12%	191	76	115	45%	321	92
GARY, IN	576	239	337	28%	545	231	314	95%	88	488
GLENDALE, CA	187	64	123	7%	113	48	65	60%	188	4
GRAND RAPIDS, MI	679	289	390	18%	405	195	210	60%	358	312
GREENSBORO, NC	399	160	239	14%	335	148	187	84%	129	265
HARTFORD, CT	748	348	394	24%	696	330	366	94%	443	288
HALEAH, FL	283	107	176	10%	157	73	84	55%	267	16
HONOLULU, HI	428	144	284	7%	307	130	177	72%	71	14
HOUSTON, TX	6,621	2,715	3,906	18%	3,428	1,622	1,806	52%	3,935	2,607
HUNTINGTON BEACH, CA	179	83	116	8%	109	45	64	51%	171	1
HUNTSVILLE, AL	381	165	216	15%	299	151	148	78%	147	232
INDIANAPOLIS, IN	2,372	968	1,404	18%	1,985	898	1,087	84%	1,248	1,118
IRVING, TX	372	151	221	12%	180	90	90	48%	328	34
JACKSON, MS	682	296	386	19%	619	280	339	91%	78	684
JACKSONVILLE, FL	1,903	717	1,186	16%	1,406	616	790	74%	874	1,014
JERSEY CITY, NJ	714	297	417	15%	629	288	361	88%	310	392
KANSAS CITY, KS	571	230	341	21%	487	218	271	85%	270	292
KANSAS CITY, MO	1,355	585	790	17%	1,200	539	661	89%	480	882
KNOXVILLE, TN	441	173	268	17%	305	145	160	69%	278	163
LAS VEGAS, NV	1,332	474	859	14%	958	404	554	72%	989	313
LEXINGTON-FAYETTE, KY	477	181	296	14%	345	148	197	72%	313	163
LINCOLN, NE	258	89	169	9%	207	79	128	80%	225	27
LITTLE ROCK, AR	572	207	365	15%	481	197	284	84%	138	435
LONG BEACH, CA	1,474	592	882	13%	972	425	547	68%	951	383
LOS ANGELES, CA	11,741	4,629	7,112	13%	8,912	3,828	5,086	76%	9,690	1,895
LOUISVILLE, KY	1,416	512	804	20%	1,200	559	641	85%	696	710
LUBBOCK, TX	638	289	357	19%	249	141	108	39%	515	120
MADISON, WI	281	68	133	7%	167	61	108	83%	110	76
MEMPHIS, TN	2,579	1,185	1,414	21%	2,344	1,111	1,233	91%	357	2,213
MESA, AZ	701	217	464	12%	482	198	284	69%	646	30

(continued)

TABLE 3. BIRTHS TO TEENAGE MOTHERS IN LARGE U.S. CITIES IN 1991 (continued)

City	Births to Teens			Of All	Births to Unmarried			Of all	Number of Births	
	Total	17 and	Ages	Births in	Total	17 and	Ages	Births to	White*	Black*
	Under 20	Younger	18-19	City, % to	Under 20	Younger	18-19	Mothers Under		
				Mothers				Age 20, Percent		
				Age 20				[Nonmarital]		
MIAMI, FL	2,556	1,105	1,551	18%	2,213	1,002	1,211	83%	1,020	1,524
MILWAUKEE, WI	2,623	1,133	1,490	21%	2,413	1,080	1,333	92%	693	1,640
MINNEAPOLIS, MN	936	414	522	14%	870	400	470	93%	283	448
MOBILE, AL	667	293	374	19%	553	271	284	83%	187	476
MOSTO, CA	623	250	375	15%	406	186	220	65%	544	16
MONTGOMERY, AL	676	289	387	19%	584	262	322	86%	117	556
NASHVILL-DAVIDSON, TN	1,320	543	777	16%	1,031	471	560	78%	568	631
NEWARK, NJ	1,249	532	717	20%	1,110	496	615	89%	389	856
NEW ORLEANS, LA	2,082	956	1,126	23%	1,957	920	1,037	94%	101	1,966
NEWPORT NEWS, VA	487	181	306	14%	350	160	190	72%	205	280
NEW YORK, NY	13,968	5,544	8,424	10%	11,617	4,956	6,661	83%	7,357	6,395
NORFOLK, VA	920	329	591	17%	671	292	379	73%	320	584
OAKLAND, CA	1,178	526	549	15%	909	429	480	77%	357	735
OKLAHOMA CITY, OK	1,374	515	859	19%	970	426	544	71%	808	478
OMAHA, NE	721	284	437	13%	645	272	373	89%	399	303
ORLANDO, FL	978	397	581	16%	737	340	397	75%	529	455
OXFORD, GA	602	234	368	15%	316	140	176	52%	556	31
PATERSON, NJ	631	263	368	19%	553	242	311	88%	309	319
PHILADELPHIA, PA	6,111	2,242	2,869	18%	4,822	2,196	2,626	94%	1,461	3,553
PHOENIX, AZ	3,306	1,319	1,987	16%	2,821	1,183	1,638	79%	2,771	385
PITTSBURGH, PA	825	371	454	15%	789	364	425	96%	213	607
PORTLAND, OR	884	377	507	12%	749	354	395	85%	586	224
PROVIDENCE, RI	490	207	283	16%	439	191	248	90%	282	149
RALEIGH, NC	370	149	221	13%	321	138	183	87%	95	271
RICHMOND, VA	629	271	358	17%	585	265	320	93%	54	563
RIVERSTIDE, CA	864	327	537	13%	629	271	358	73%	728	82
ROCHESTER, NY	1,024	472	552	17%	932	456	476	91%	390	625
SACRAMENTO, CA	1,787	710	1,057	14%	1,243	547	696	70%	1,025	471
ST LOUIS, MO	1,901	874	1,027	23%	1,808	860	948	95%	329	1,565
ST PAUL, MN	673	282	391	13%	556	248	308	83%	322	146
ST PETERSBURG, FL	673	287	386	18%	587	272	315	87%	284	385
SALT LAKE CITY, UT	411	157	254	12%	264	123	141	64%	354	8
SAN ANTONIO, TX	3,410	1,343	2,067	17%	1,381	638	743	40%	3,075	327
SAN BERNARDINO, CA	967	395	572	17%	760	341	419	79%	726	216
SAN DIEGO, CA	2,498	931	1,567	11%	1,727	714	1,013	69%	1,860	435
SAN FRANCISCO, CA	830	329	501	8%	628	262	366	76%	407	315
SAN JOSE, CA	1,835	712	1,123	13%	1,317	573	744	72%	1,549	108
SANTA ANA, CA	1,531	516	1,015	14%	877	341	536	57%	1,449	21
SAVANNAH, GA	628	271	357	21%	505	240	265	80%	169	453
SEATTLE, WA	578	231	339	8%	492	216	276	88%	258	218
SHREVEPORT, LA	730	309	421	21%	620	289	331	85%	168	562
SPOKANE, WA	497	162	335	13%	339	132	207	68%	459	14
SPRINGFIELD, MA	580	260	320	19%	521	245	276	90%	426	143
SPRINGFIELD, MO	314	90	224	15%	193	67	126	61%	296	13
STOCKTON, CA	1,939	454	585	17%	682	328	354	66%	871	142
SYRACUSE, NY	593	274	319	19%	538	267	271	91%	257	324
TACOMA, WA	428	162	267	13%	354	148	206	83%	283	98
TAMPA, FL	1,378	579	799	16%	1,117	519	598	81%	643	727
TEMPE, AZ	207	71	136	10%	154	62	92	74%	192	8
TOLEDO, OH	1,205	479	726	19%	1,062	446	616	88%	636	569
TUCSON, AZ	1,300	452	848	16%	974	384	590	75%	1,171	84
TULSA, OK	1,075	401	674	18%	720	309	411	67%	619	358
VIRGINIA BEACH, VA	670	284	466	9%	446	179	267	67%	453	196
WARREN, MI	174	62	112	9%	90	41	49	52%	168	2
WASHINGTON, DC	2,046	953	1,093	17%	1,946	923	1,021	95%	43	1,895
WICHITA, KS	601	297	564	14%	644	249	395	75%	609	219
WINSTON-SALEM, NC	454	176	278	18%	403	165	238	89%	112	342
WORCESTER, MA	397	180	217	14%	341	168	173	86%	332	44
YONKERS, NY	282	118	164	9%	240	111	129	85%	165	116

Source: Unpublished data from the National Center for Health Statistics, Department of Health and Human Services; forthcoming in *Vital Statistics of the United States, 1992, Vol. 1, Mortality*.

\*Births are now reported by the National Center for Health Statistics by race of mother, not race of child as was done prior to 1989.

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