

TEEN PREGNANCY PREVENTION: Do Any Programs Work?

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KEY WORDS: teen sexuality, teen contraception, teen childbearing, program evaluation, program effectiveness

ABSTRACT

This paper begins with a review of the problem of teen pregnancy in the United States. Domestic trends are compared with those of other developed countries. Antecedents of the problem are discussed. New developments in addressing the problem are then described, including the following: (a) a renewed emphasis on abstinence on the one hand; (b) a move toward a more positive view of teen sexuality on the other; (c) the development of new prevention initiatives such as STD/HIV/AIDS prevention programs, community-wide teen pregnancy prevention collaboratives, broad-based youth development programs, and state and local government initiatives; and (d) the launching of the National Campaign to Prevent Teen Pregnancy. An analysis of the different ways in which the problem can be framed and the implications for solutions of the problem follow. Examples of promising teen pregnancy and STD/HIV/AIDS prevention programs are provided. The paper ends with a recommendation for an eclectic approach to framing the problem and possible solutions.

STATEMENT OF THE PROBLEM

Teen mothers are less likely to complete high school than their classmates. They are also more likely to end up on welfare. The children of teen mothers have lower birth weights, are more likely to perform poorly in school, are at greater risk of abuse and neglect, are more likely to be placed in foster care, are more likely to engage in criminal activity as adolescents and young adults, and are less likely to be economically and socially successful as adults. Daughters of teen mothers are more likely to repeat the cycle and themselves become teen mothers (38, 47, 49, 52). Although recent research suggests that these multidimensional

educational, occupational, health, and social consequences are not as deleterious as has long been thought, the adverse effects are real. Adolescent parenting results in a loss of human potential. There are also economic and social costs to teen childbearing. In 1990, the government spent more than \$25 billion for social, health, and welfare services to families begun by teen mothers (51).

INTERNATIONAL COMPARISONS

The United States has the highest teen birth rate in the developed world. The teen birth rate in the United States is fourfold that in the countries of Europe. A cross-national study of six industrialized countries showed the US teen pregnancy rate to be higher, as well, than that of Canada, England and Wales, France, the Netherlands, and Sweden. These intercountry differences in teen birth and pregnancy rates are not caused by differences in the proportions of married teens in the United States and Europe; the same conclusions would apply if only unmarried teens were examined. Similar conclusions would also be reached if comparisons were restricted to white teens only. The proportions of sexually active (nonvirgin) teens are likewise similar across the industrialized countries, with the exception of Sweden, where higher proportions of teens are sexually active at every age. Thus, earlier or more frequent sexual activity among US teens is not the cause of the higher teen pregnancy and birth rates in the United States. What then accounts for these rates? The answer lies in differences in contraceptive use patterns among sexually active teens. American teenagers are less likely to use contraceptives when having sex than are their European counterparts. Those American teens who do use contraceptives are less likely to use effective contraceptives such as the pill. They are also less likely to use contraceptives with regularity (72).

TRENDS

The US birth rate among teens aged 15–19 declined steadily from 1970 to 1978, rose slightly in the 1978–1983 time period, declined to a record low of 50.2 births/1000 females aged 15–19 in 1986, and then rose again to a peak rate of 62.1/1000 in 1991. Of note, however, is that over the most recent period for which national statistics are available (1991–1996), the rate has steadily declined. The birth rate for US females aged 15–19 was 54.7/1000 in 1996, 12% less than the 1991 peak rate of 62.1/1000, but not yet as low as the 1986 record low birth rate of 50.2/1000. The decline in the teen birth rate was sharpest for black teens—a 21% drop from 1991 to 1996, according to the National Center for Health Statistics (49, 73). Although black teens still have almost twice the birth rate of white teens, they now have a lower birth rate than Hispanic teens.

We cannot say with certainty why the teen birth rate has been dropping. Several explanations have been put forward, including a rise in the popularity of abstinence (an increase in the proportion of teens choosing not to have sex), as well as an increase in contraceptive use among sexually active teens. In part because of the AIDS scare, use of condoms among sexually active teens has risen fourfold in the last 15 years, from 11% to 44%. In addition, inner-city teenagers are increasingly using the highly effective Depo-Provera injections or Norplant.

Although undoubtedly cause for celebration, the recent decline in the teen birth rate should be treated with only cautious optimism for two reasons. First, the lower teen birth rate has been accompanied by increasing proportions of unmarried teens among teenage mothers. For example, in 1994, 76% of teen mothers were unmarried. Thirty-four years earlier, in 1960, only 15% of teen mothers were unmarried (51). This higher proportion of out-of-wedlock births among teen mothers likely reflects changing social values—the generally greater acceptability of out-of-wedlock childbearing in the United States, as it mirrors a similar increase in out-of-wedlock childbearing among older American women.

Also tempering the celebration over the recent decline in the birth rate among teens is the continuing high incidence of sexually transmitted infections (STIs) among US adolescents. The incidence of STIs among adolescents increased rapidly in the 1960s and 1970s and remained high in the 1980s and 1990s despite the profusion of AIDS prevention messages. One-fourth of all STI cases in the United States occur among teenagers. In the 1980s and 1990s, gonorrhea infection rates fell among older age groups in the United States but remained constant among teens; rates for chlamydia infection are at least double those of gonorrhea. The number of visits by teenage women to office-based fee-for-service practices for genital herpes infections increased over sixfold, from 15,000 in 1966 to 100,000 in 1995. The number of visits by teenage women for genital warts caused by the human papillomavirus (HPV) quadrupled from 50,000 in 1966 to approximately 200,000 in 1995 (72). Clearly, adolescents' sexual behavior puts them at risk not only for pregnancy but for STIs as well.

ANTECEDENTS

Broad social and environmental factors such as poverty and social disorganization—high residential turnover, high divorce rates, and poor parental support and supervision—put teens at greater risk of pregnancy. Individual characteristics such as poor school performance, low expectations for the future, high aggression, difficulty getting along with peers, and early pubertal development make particular teens additionally vulnerable (38). Both sets of factors need to be taken into account in developing strategies to address the problem.

WHAT HAS BEEN DONE ABOUT THE PROBLEM?

A Historical View

Largely as a result of research findings on the negative consequences of teen pregnancy and parenthood, “care” programs for pregnant teens, teen mothers, and their infants proliferated in the 1970s. These programs generally provided comprehensive pre- and postnatal health services for the young mother and her child. The prenatal programs were very helpful in attenuating, often even preventing, the negative consequences of teen parenthood for the health of the infant. Many care programs also helped the teen mother stay in or return to school by providing special classes for these moms, day care for their children, or both.

In the early 1980s, program planners began to look more to prevention as an effective way to address the problems of teen pregnancy and parenthood. New programs aimed at preventing the occurrence of the early pregnancy or birth began to emerge. A variety of different approaches were tried, based on the research literature on antecedents of the problem as well as on program planners’ ad hoc or ideologically based ideas about acceptable and effective means of preventing pregnancy (48). Among the approaches tried were the following:

1. “Just say ‘No’” approaches, which teach young people the benefits of abstinence and the skills to refuse unwanted advances
2. Sex education approaches, which focus on teaching teens about the reproductive process and STIs, how to avoid getting pregnant—using abstinence or contraception, and how to avoid getting STI/HIV/AIDS
3. Contraceptive provision approaches, which facilitate access to contraception by the sexually active (e.g. by establishing community-based family planning clinics, school-based or school-linked health centers that dispense contraception, and condom distribution locations in schools and communities)
4. More general life option or youth development approaches—programs with broader activities such as academic remediation, job training, or adult mentoring, which are founded on the premise that the belief in a compelling personal future or goal is a strong incentive to avoid teen pregnancy
5. Multiple-component programs composed of two or more of the above approaches.

In the 1990s, several new approaches to the problem emerged.

RENEWED EMPHASIS ON ABSTINENCE Many schools and communities have rallied around the call for a return to the “old days” when abstinence until marriage was the expectation and the norm. Proponents of the abstinence-only approach give two primary reasons for the correctness of their approach: First, it is immoral to have sex outside marriage; second, abstinence is the most effective way to prevent both pregnancy and STIs.

POSITIVE VIEW OF TEEN SEXUALITY At the opposite end of the spectrum, other schools and communities have attempted to refocus the issue away from the prevailing “problem” or “disease” model of teen sexuality and pregnancy to the more positive challenge of how a nation teaches its children what healthy and responsible sex means in the adolescent years (53).

STI/HIV/AIDS PREVENTION PROGRAMS In response to the AIDS and STI epidemics, many programs have been developed that are aimed at preventing not only pregnancy among teens, but STI/HIV/AIDS as well. Some of the STI/HIV/AIDS prevention programs are aimed at the general youth population and stress the importance of abstaining from sex or using STI protection (a condom) when having sex. Other STI/HIV/AIDS prevention programs are designed for high-risk, sexually active populations of youths such as gay and bisexual youths, runaways, drug-abusing youths, and incarcerated teens. These programs focus on “safer sex,” teaching teens how to assess the riskiness of their sex-related behaviors and then lower such risk levels.

COMMUNITY-WIDE INITIATIVES Another recent development has been an increase in the scale of teen pregnancy prevention programs. Because, as described previously, a constellation of societal and individual factors bring about teen pregnancy, many communities have begun community-wide teen pregnancy prevention initiatives aimed at addressing teen pregnancy in the context of the larger social issues surrounding the problem. Collaborative programs among schools, community groups, and family planning clinics are being established to coordinate these efforts within the community. The Centers for Disease Control and Prevention (CDC) has awarded cooperative agreements to 13 community-wide coalition partnership programs to demonstrate that community partners, in communities with a population of 200,000 or more, can mobilize and organize community resources in support of community-wide, comprehensive, risk-specific, effective, and sustainable programs for the prevention of initial and repeat teen pregnancies. These community-wide coalition partnership programs are located in the following cities: Boston, MA; Chicago, IL; Jacksonville, FL; Kansas City, MO; Milwaukee, WI; Oklahoma City, OK; Philadelphia, PA; Pittsburgh, PA; Rochester, NY; San Antonio, TX; San Bernardino, CA; Winter Park, FL; and Yakima, WA (9).

YOUTH DEVELOPMENT PROGRAMS Another approach to addressing the larger societal factors surrounding teen pregnancy has come in the form of a newly emerging interest in “youth development” programs that begin intervening at an early point in the life of a child (e.g. junior high school or even elementary school), include components that go beyond teaching abstinence or contraception (e.g. academic remediation, job training), and have goals that go beyond preventing teen pregnancy (e.g. increasing rates of graduation from high school, enhancing post-graduation employment opportunities). The relationship of these programs to teen pregnancy arises from the belief that “the best contraceptive is a bright future.”

STATE AND LOCAL GOVERNMENT INITIATIVES State and local governments have taken an increasingly active role in tackling the problem of teen pregnancy. Initiatives have come in the form of sex education and statutory rape laws and the sponsoring of media campaigns with a variety of messages promoting teen pregnancy prevention, such as “You can go farther when you do not go all the way” and “You play, you pay” (North Carolina, Maryland); “A child is too important to leave to chance” and “Don’t kid yourself” (Montana); and “It’s okay, even cool, to say no to sex” (New York) (52).

THE NATIONAL CAMPAIGN TO PREVENT TEEN PREGNANCY With encouragement from President Bill Clinton, the privately funded National Campaign to Prevent Teenage Pregnancy was founded in 1996. The Campaign’s mission is to prevent teen pregnancy by supporting values and stimulating actions that are consistent with a pregnancy-free adolescence. Its goal is to reduce the teen pregnancy rate by one-third by the year 2005. Working through a group of five task forces, the Campaign has five primary components: (a) taking a strong stand against teen pregnancy and attracting new and powerful voices to this issue; (b) enlisting the help of the media; (c) supporting and stimulating state and local action; (d) leading a national discussion about the role of religion, culture, and public values in an effort to build common ground; and (e) making sure that everyone’s efforts are based on the best facts and research available (52). In the two years since its formation, the Campaign has put together an impressive array of diverse and powerful voices, conferences, focus groups, and print and audiovisual material aimed at teen pregnancy prevention. Available at no charge (for the first issue) from the Campaign¹ are publications such as (a) *No Easy Answers: Research Findings on Programs That Reduce Teen Pregnancy*; (b) *Where Are the Adults: The Attitudes of Parents, Teachers, Clergy, Coaches, and Youth Workers on Teen Pregnancy*; (c) *Families Matter: A Research Synthesis of Family Influences on Adolescent Pregnancy*;

¹Write The National Campaign to Prevent Teen Pregnancy, 2100 M Street, NW, Suite 300, Washington DC 20037. Or call: (202) 261-5655

(d) *Snapshots from the Front Line: Lessons from Programs That Involve Parents and Other Adults in Preventing Teen Pregnancy*; (e) *A Statistical Portrait of Adolescent Sex, Contraception, and Childbearing*; (f) *Ten Tips for Parents to Help Their Children Avoid Teen Pregnancy*; (g) *Partners in Prevention: How National Organizations Assist State and Local Teen Pregnancy Prevention Efforts*; and (h) *Sending the Message: State-Based Media Campaigns for Teen Pregnancy Prevention*.

FRAMING THE PROBLEM AND POSSIBLE SOLUTIONS

Before the question “What works?” can be addressed, the question “To solve what problem?” needs to be answered. A major challenge for the National Campaign to Prevent Teen Pregnancy, indeed for the country as a whole, lies in the lack of consensus about what the problem is or indeed whether the country has a problem to begin with. Ongoing, occasionally contentious national debate has centered on framing the problem and its possible solutions.

Is There a Problem?

There are those who believe that the nation has erred in focusing energy and attention on teen sexual behavior, pregnancy, and parenthood. The real problem, they assert, is poverty. To back up their position, they provide evidence that early research on the consequences of teen pregnancy for mother, father, and infant overstated teen parenthood’s deleterious educational, occupational, health, social, and societal consequences. These deleterious consequences, attributed to teen pregnancy by early research, were (and still are) problems brought about by antecedent factors common to both teen pregnancy and the negative consequences: poverty and social disorganization. More recent research has done a better job of controlling statistically for these common antecedents of teen pregnancy, school failure, unemployment, etc. For the most part, the deleterious effects attributed to teen pregnancy have been reaffirmed. Most segments of society are now willing to concede that teen parenthood has negative personal consequences for mother and child as well as cost consequences for society, although these deleterious effects may not be as severe as was once thought.

What Is the Problem?

A more major and contentious debate centers on the outcome variable, the “problem” that we as a nation should address. A vocal minority say that too-early sex is the problem. A greater number say that the problem is not sexual activity among teens but rather too-early pregnancy. Yet others believe that it is not sex or pregnancy per se, but rather out-of-wedlock sex or pregnancy, forced sex, or unintended pregnancy that is the problem. Finally, there are

those who believe that teen childbearing lies at the heart of the problem: Only teen pregnancies carried to term bring about the deleterious consequences that research has documented.

What Is the Solution?

The way the problem is framed is crucial because such framing determines the possible solutions. It determines “what works” to solve the problem. Those who believe that sex by unmarried teenagers is the problem press for abstinence-only approaches to solving the problem. Contraceptive-related approaches to reducing the US teen pregnancy rate cannot be considered. These approaches are morally unacceptable because they condone unmarried-teen sex, an immoral activity. Those who believe that teen pregnancy is the heart of the problem embrace both abstinence and contraception approaches to solving the problem. Since unprotected sexual intercourse is what leads to pregnancy, whatever works to reduce such unprotected sex is where the focus of attention should be. Both abstinence and contraception approaches are laudatory because they work in tandem to reduce the teen pregnancy rate. For those who assert that teen parenthood lies at the heart of the problem (because the negative consequences of teen pregnancy have been documented only for the group of teens who carry their pregnancy to term), whatever works to reduce the teen birth rate should be considered and made available to all teens: abstinence-focused intervention programs, contraception-focused intervention programs, and even abortion services. Finally, for those who continue to believe that the heart of the problem lies not in teen sex, pregnancy, or parenthood but in poverty, youth development approaches that emphasize skill building, future planning, and adult involvement more than sexuality or pregnancy are the solutions of choice.

Toward an Eclectic Approach to Framing the Problem and Possible Solutions

In 1998, the National Campaign to Prevent Teen Pregnancy presented an award to the California communities of Bloomington and Colton, near San Bernardino, for a program that brought together the most socially conservative and the most socially liberal to find common ground on preventing teen pregnancy. The San Bernardino approach provides a model for an eclectic, inclusive approach to framing and solving the problem of teen pregnancy. With an inclusive approach, all stakeholders within a community, regardless of their views on the problem or its solutions, are encouraged to talk to one another, with the goal of finding common ground when they can and agreeing to disagree when they cannot. When common ground can be found among stakeholders, a coherent and integrated approach to preventing pregnancy can be organized within the community. When common ground cannot be found, programs with different approaches

can coexist within the same community. The important thing, in either instance, is to ensure that (a) pregnancy prevention initiatives and programs are consistent with the values and beliefs of the segment(s) of the community in which they are implemented, (b) all efforts incorporate components that have been found to be part of effective programs (see the next section), and (c) all stable efforts (ones that have been in place for a couple of years) are evaluated for effectiveness, with appropriate modifications made in response to the evaluation.

WHAT WORKS?

Evaluation Methods

An important development of the 1990s has been the growing acceptance—among community leaders, service providers, practitioners, legislators, policymakers, funders, and researchers alike—of the importance of conducting scientific evaluations of the effectiveness of teen pregnancy prevention programs. A consensus is growing that program development should be guided not only by what might or should work (based on moral, ideological, personal, or political beliefs) but on what does work (based on rigorous scientific evaluation). This acceptance of evaluation's importance in shaping and strengthening programs was slow in coming. Although by 1990 several hundred teen pregnancy prevention programs had been developed and implemented, few good evaluations existed. A variety of reasons underlay this dearth of scientifically valid program evaluations (7). First, there were the tensions, some more real than others, between service and science. Service providers were often reluctant to direct dollars that could go toward helping those in need to scientific endeavors whose benefits were (perhaps erroneously) perceived as relatively remote. In addition, both funders and service providers were understandably wary about possible fallout from negative evaluations. Beyond this, some funders felt constrained by fact or politics from providing support for approaches not in line with their mission or their legislative mandate. As the national debate grew over related issues such as abortion and the provision of contraception to minors, powerful institutions such as schools became increasingly reluctant to ally themselves with controversial issues such as school-based clinics or contraceptive education and provision.

There were also tensions between the requirements of science and the realities of program administration. For example, scientific evaluation encouraged the random assignment of subjects to treatment and control groups; administrators often replied that it was unacceptable to withhold treatment from those in need, especially when the funds were available to provide the service. Scientific rigor demanded that baseline and follow-up data be collected from identifiable individuals so that these data could be linked; administrators often replied that, for cost and confidentiality reasons, this could not be done. Moreover, when

a good evaluation was designed and implemented, it was often discovered that members of the control or comparison group had been exposed to the influence of competing similar programs, thus allowing only for a very conservative test of the program's effectiveness.

Despite these obstacles, the field has made laudable progress in the 1990s. Consciousness about the importance of evaluation has been raised. Evaluation instrumentation has advanced. Today the field is more aware of the technical challenges of program evaluation, as well as the costs and benefits associated with various research designs. Moreover, the ways in which evaluation data may serve to improve prevention programs are now better appreciated and understood (72).

Hand in hand with the slow but inexorable acceptance of evaluation's importance has come a wave of publications reviewing the evidence for the effectiveness of existing teen pregnancy prevention and teen STI/HIV/AIDS prevention programs (3, 8, 22, 23, 26, 30, 35, 37, 38, 40, 48, 50, 59, 79). The consensus of these reviews is that the state of evaluation research on teen pregnancy prevention programs, although improved, still has a way to go before definitive findings can be touted. Problems with the state-of-the-art include a dearth of evaluated programs, methodological problems among the evaluations actually conducted, inconsistent results reported by published evaluations, and the dearth of replications of even the most promising programs (38). Despite these limitations, characteristics of effective programs have begun to emerge from the literature.

Evaluation Results

"What works" in preventing teen pregnancy can be analyzed in three ways. (a) Which of the general approaches to the problem—abstinence-only, sex education, contraceptive provision, youth development, multicomponent, or community-wide initiatives—appears to be the most promising? (b) What are the characteristics, or common components, of effective programs? (c) Which individual prevention programs appear to be the most promising and deserving of replication and re-evaluation?

EFFECTIVENESS OF THE VARIOUS APPROACHES TO PREVENTING TEEN PREGNANCY Most existing reviews have used a framework of assessing the effectiveness of one or more approaches to preventing teen pregnancy for answering the question "What works?" According to these reviews, the jury is still out on abstinence-only programs. Although the weight of evidence indicates that these programs do not delay the onset of intercourse as intended, methodological flaws with existing evaluations warrant a wait-and-see approach. The Personal Responsibility and Work Opportunity Act of 1996, which was signed into law by President Clinton on August 22, 1996, contains a provision that will

provide \$50 million in annual matching grants to states for abstinence-only programs, beginning in 1998. All 50 states have applied for these funds. Congress has allocated \$6 million for a national evaluation of these “abstinence-until-marriage” education programs (79). Hopefully the field will be able to make some definitive statements about the effectiveness of the abstinence-only approach in about 3 years. Most evaluated programs have fallen under the more general sex education approach—programs that discuss abstinence and contraception, as well as STI/HIV/AIDS. Some of these programs have been shown to be successful in delaying the onset of intercourse, reducing the number of sexual partners, and/or increasing the use of contraceptives such as condoms. Others have not. The evidence for the effectiveness of contraceptive provision, youth development, and multiple-approach prevention programs has likewise been mixed. Similarly, the jury is still out on whether community-wide initiatives work. The methodological challenges inherent in the evaluation of large, community-wide initiatives are only now beginning to be sorted out. It should be pointed out that there is an inherent weakness to addressing the “what works” question in terms of these general approaches to solving the teen pregnancy problem. Given the wide variety of programs that could fall under each approach—programs differing in intensity, duration, components or pedagogical approaches used, and age and level of risk of the target population—the most likely (indeed, perhaps the only) conclusion of any analysis will be one of apparent inconclusiveness and inconsistency. Some programs using Approach A work; others do not. Some programs using Approach B work; others do not. The inconclusiveness is built into the way the analysis is framed in the first place. Within any given type or approach, there will be “strong” programs, and there will be “weak” programs. No one approach can be expected to yield anything other than mixed results. Thus, the second and third ways (below) of trying to determine what works are more appropriate ways of framing the question and more likely to lead to useful answers: Do effective programs share common characteristics? Are there individual programs that have been successful in documenting sexual or contraceptive-use behavioral change in participants?

CHARACTERISTICS OF EFFECTIVE PROGRAMS Programs that show modest improvements share nine important characteristics, according to a recent review commissioned by the Effective Programs and Research Task Force of the National Campaign to Prevent Teen Pregnancy. They (a) focus clearly on reducing one or more sexual behaviors that lead to unintended pregnancy or STI/HIV/AIDS infection; (b) incorporate behavioral goals, teaching methods, and materials that are appropriate to the age, sexual experience, and culture of students; (c) are based on theoretical approaches that have been demonstrated

to be effective in influencing other health-related risky behaviors; *(d)* last long enough to allow participants to complete important activities; *(e)* provide basic, accurate information about the risks of unprotected intercourse and methods of avoiding unprotected intercourse; *(f)* use a variety of teaching methods designed to involve the participants and have them personalize the information; *(g)* include activities that address social pressures related to sex; *(h)* provide models of and practice in communication, negotiation, and refusal skills; and *(i)* select teachers or peers who believe in the program and then provide them with training, which often includes practice sessions (38).

Another recent review (8) used an expert panel of noted scientists in the field to examine the evidence for effectiveness of existing teen pregnancy and STI/HIV/AIDS prevention programs and then prioritize such programs in terms of their documented impact on one or more of 13 outcome variables related to teen pregnancy and STI/HIV/AIDS prevention: *(a)* for teens who are not yet sexually active, postponing sexual intercourse; and, for already sexually active teens: *(b)* decreasing the frequency of sexual intercourse; *(c)* decreasing the number of sexual partners; *(d)* increasing contraceptive use at first intercourse; *(e)* increasing contraceptive use at most recent intercourse; *(f)* increasing consistent contraceptive use among the sexually active during all intercourse; *(g)* preventing pregnancy; *(h)* increasing use of effective STI/HIV/AIDS-prophylactic methods at first intercourse; *(i)* increasing use of effective STI/HIV/AIDS-prophylactic methods at most recent intercourse; *(j)* increasing consistent use of effective STI/HIV/AIDS-prophylactic methods during all intercourse; *(k)* substituting lower-risk sexual behaviors for high-risk behaviors; *(l)* increasing STI/HIV/AIDS prevention-related behaviors such as increased condom purchasing and increased voluntary condom carrying; and *(m)* preventing STI/HIV/AIDS. For programs aimed at children 15 or younger, a demonstrated, positive impact on fertility-related and/or STI/HIV/AIDS-related refusal/negotiation skills, intentions, values, and attitudes, or on all of these aspects, was accepted as preliminary evidence of the program's promise. These criteria were used to justify the inclusion of 30 programs—11 primary prevention programs aimed at preventing a first pregnancy, 4 secondary prevention programs aimed at preventing a second pregnancy, and 15 STI/HIV/AIDS prevention programs—in a collection of prevention packages for public dissemination and use known as PASHA, the Program Archive on Sexuality, Health and Adolescence.

The approaches and components of the 30 exemplary PASHA programs provide insight into what works. The term “approach,” as used here, refers to the general rationale or theory of behavioral change guiding the intervention. Eight approaches were discerned in the PASHA collection: abstinence, behavioral skill development, community outreach, contraceptive access, contraceptive

education, life option enhancement, self efficacy/self esteem, and sexuality/STI/HIV/AIDS education. "Components," in contrast, represent the more specific instructional methods or techniques used in program delivery. Eight primary components were found in the PASHA collection: adult involvement, case management, group discussion, lectures, peer counseling/instruction, public service announcements, role playing, and video. Analyses of the former dimension found that the use of multiple approaches was common in effective programs. On average, programs in the collection incorporated four different approaches. One broad-based community-wide intervention (School/Community Program for Sexual Risk Reduction among Teens) included all eight. Three approaches were found in nearly all (over 90%) of the 30 interventions: (a) behavioral skills development (e.g. practicing saying "No" to unwanted sex, practicing how to avoid risky situations, practicing how to purchase a condom, and negotiating condom use with a sexual partner); (b) contraceptive education; and (c) sexuality education. Of the 30 PASHA programs, 10 provided participants with access to contraceptives. Eight emphasized improving self-efficacy. Finally, abstinence was promoted as the preferred, but not exclusive, choice for adolescents in eight programs.

With respect to the program components dimension, it was found that four methods or techniques for program delivery predominated: (a) group discussions (used in 25 programs), (b) lectures (21 programs), (c) role playing (20 programs), and (d) videos (14 programs). Of the remaining components, adult involvement (such as special evening sessions introducing parents to school-based programs and encouraging communication with their children regarding sexuality) was most often used in primary pregnancy prevention programs. Case management was common within secondary pregnancy prevention programs, where mothers receive a broad array of services matched to their specific educational, social, and psychological needs. Finally, drawing upon principles of Social Learning Theory, a few primary pregnancy and STI/HIV/AIDS programs invited specially trained adolescents to serve as peer counselors or leaders, thus aiming to provide persuasive and powerful role models for participants.

Two measures of program intensity were investigated: the number of sessions and the total length of the intervention. Here tremendous variability was found within the PASHA effective-program collection. For example, two STI/HIV/AIDS prevention programs relied on single session workshops, lasting between 1 and 3 hours, whereas the clinic-based secondary pregnancy prevention programs typically offered mothers a multiplicity of services from pregnancy through their 20th birthday. Programs directed to high-risk youth (e.g. gay and bisexual teens and runaways) were relatively more intense, perhaps involving 30–40 hours of participation. In contrast, programs directed

toward a wider audience, often implemented in family life education programs, typically spanned a few weeks but involved only 5–15 hours of instruction (8).

EXAMPLES OF PROMISING PROGRAMS The 30 promising programs composing the Program Archive on Sexuality, Health & Adolescence are described briefly below, along with a summary of the evidence for their effectiveness. The complete sets of materials needed to implement 23 of the 30 programs are available from the public-use PASHA archive.² In answering the question “What works,” it is important to study and understand the details of each of these programs: their target population, the schedule and nature of activities composing the intervention, and the requirements for the program provider. This is true because it is not a generic program, e.g. a school-linked clinic, that works. Rather, it is a particular school-linked clinic [e.g. the one called The Self Center in the Baltimore schools, described by Zabin, et al (below)], with its particular set of associated counseling and outreach activities, that is successful. There is no guarantee, of course, that a program that is effective at one site, with one group of teens, will be effective at another site. But documenting the robustness of the initial finding of effectiveness is made more difficult if we mistakenly assume that a particular element or component of a program is what caused the initial finding of effectiveness. For example, if we assume that a reproductive health clinic will likely reduce the pregnancy rate in a high school merely because it is school based or school linked—without the associated counseling or outreach components that were included in the original promising program—we may be sadly disappointed. Indeed, the field did go through this letdown subsequent to the surge in school-based clinics that followed on the heels of the Zabin program, as rigorous evaluation failed to document the effectiveness of what were mistakenly viewed as replications of The Self Center (40).

Eleven Promising Primary Pregnancy Prevention Programs

ADOLESCENT COMPLIANCE IN THE USE OF ORAL CONTRACEPTIVES A program entitled Adolescent Compliance in the Use of Oral Contraceptives uses peer counselors to educate and support adolescent family planning patients between 14 and 19 years of age. During patients’ initial visit to the clinic, they receive their first cycle of oral contraceptives and instruction and guidance from the peer counselors. Follow-up visits are scheduled after the initial appointment, and compliance in use of the contraceptives is measured at each session. A field study of the intervention was conducted with 57 teens visiting an adolescent-gynecology clinic in Atlanta. Compared with their peers receiving instruction

²Write Program Archive on Sexuality, Health & Adolescence, Sociometrics Corp., 170 State Street, Suite 260, Los Altos, CA 94022, or call (650) 949-3282, ext. 236.

and guidance from nurses, program participants receiving training from peers showed higher levels of compliance at the 1- and 2-month follow-up assessments. By the 4-month follow-up, program participants were more likely than their peers to still be using the oral contraceptives (31).

HUMAN SEXUALITY—VALUES & CHOICES: A VALUES-BASED CURRICULUM FOR SEVENTH AND EIGHTH GRADES Developed for use in seventh- and eighth-grade classrooms, a program entitled Human Sexuality—Values & Choices aims to reduce teenage pregnancy by promoting seven core values that support sexual abstinence and healthy social relationships: equality, self-control, promise keeping, responsibility, respect, honesty, and social justice. After a field test in nine schools, program participants showed a greater understanding of the risks associated with early sexual involvement, and they expressed increased support for postponing sexual activity, as compared with a control group of their peers (13).

TAILORING FAMILY PLANNING SERVICES TO THE SPECIAL NEEDS OF ADOLESCENTS: NEW ADOLESCENT APPROACH PROTOCOLS A family planning clinic-based intervention program called Tailoring Family Planning Services to the Special Needs of Adolescents was originally developed for teens between 15 and 17 years of age and encourages contraceptive use by providing family planning services in a manner that will increase teens' sense of comfort, increase their self-confidence, and reduce any fears that may discourage regular and effective contraception. A field study was conducted with 1,261 teens attending six family planning clinics. Compared with their peers receiving standard services, program participants showed significantly greater gains in knowledge and contraceptive usage and significantly fewer pregnancies at the 6- and 12-month follow-up assessments (80).

POSTPONING SEXUAL INVOLVEMENT Postponing Sexual Involvement (PSI) is a junior high school level program that begins with the premise that teens should not be having sexual intercourse. To help young people remain abstinent, participants learn about human relationships, sources of sexual pressure, and assertive responses to use in high-risk situations. Class sessions emphasize interaction and repeated role playing, and they are directed by trained peer leaders. Video presentations demonstrating refusal and negotiation skills are also used. A field study of the program was conducted with 1,005 eighth grade students from low-income communities in Atlanta. Compared with a control group of peers, participants who had not had sexual intercourse before the program were significantly more likely to remain abstinent through the end of the ninth grade. Among female participants, the expected pregnancy rate dropped by one third (11, 27–29).

PROJECT TAKING CHARGE Developed for junior high school home economics classrooms, Project Taking Charge integrates family life education with lessons on vocational exploration, interpersonal and family relationships, decision-making, and goal-setting. Project Taking Charge promotes abstinence as the correct choice for adolescents, and no material on contraception is included. A field study was conducted with 136 youths from three low-income communities with elevated rates of teen pregnancy. Six months after the intervention, program participants showed significant gains in knowledge of sexual development, STIs, and the risks of adolescent pregnancy, relative to a comparison group of students. There was also some evidence, falling just short of significance, that participation was associated with a delay in the initiation of sexual intercourse (33, 34).

REDUCING THE RISK Reducing the Risk is a 16-session, high school level sexuality education curriculum designed to reduce the frequency of unprotected sexual intercourse through (a) delaying or reducing the frequency of intercourse or (b) increasing contraceptive and STI-protection. A field study of the program was conducted in 13 California high schools. Participation in the program significantly increased teens' knowledge and communication with parents regarding abstinence and contraception. In addition, the program significantly reduced the likelihood that students who had not had intercourse at the start of the program would become sexually active by the 18-month follow-up assessment. However, program participation did not affect the frequency of sexual intercourse or the use of contraceptives among teens who were already sexually active at the start of the program (4, 5, 39).

REPRODUCTIVE HEALTH COUNSELING FOR YOUNG MEN Originally developed for boys between 15 and 18 years of age, Reproductive Health Counseling for Young Men is a 1-hour, single-session, clinic-based intervention designed to meet the needs of sexually active and inactive teens and to promote abstinence as well as contraception. A field study of the intervention was conducted with 1,195 high school-aged males visiting health maintenance organizations in two northwestern US cities. Compared with a group of their peers, sexually active program participants were significantly more likely to use effective contraception at the 1-year follow-up assessment, especially if they were not yet sexually active at the time of the intervention. Sexually active female partners of program participants were also more likely to use effective contraception at the follow-up (12).

SCHOOL/COMMUNITY PROGRAM FOR SEXUAL RISK REDUCTION AMONG TEENS The School/Community Program for Sexual Risk Reduction among Teens is a community-wide public outreach campaign aimed at preventing pregnancy

among unmarried adolescents. Public schools, universities, church groups, and civic organizations are all targeted as sites for training and workshops concerning human physiology, sexual development, self-concept and sexual awareness, values clarification, and communication skills. Abstinence is promoted as the preferred sexual health decision in all activities; contraceptive information is provided for teens who do choose to become sexually active. The intervention was developed and field-tested in a rural, low-income, and predominantly African-American community. A significant drop in the pregnancy rate was recorded during the full implementation period of the program (41, 74–77).

SCHOOL-LINKED REPRODUCTIVE HEALTH SERVICES (THE SELF CENTER) A program entitled School-Linked Reproductive Health Services was originally launched as a partnership between junior and senior high schools and a neighborhood clinic. This program combines education, counseling, and reproductive services into a comprehensive intervention for youth. A three-year field test of the intervention was conducted in a low-income neighborhood in Baltimore. Compared with their peers attending comparable schools, students in the target schools showed reduced levels of sexual activity and (among the sexually active) more effective use of contraception. These effects were greatest among the younger, sexually active girls and boys whose use of contraception was minimal at the start of the program. A delay in the onset of sexual activity was also recorded among abstinent youth (10, 24, 81–83).

TEEN OUTREACH Teen Outreach was designed to prevent early pregnancy and encourage academic progress for teens between 12 and 17. This school-based program has two main components: small-group discussion sessions with a facilitator and participation in volunteer service learning in the community. Field studies of the program have occurred at diverse sites across the country with 985 students, mostly female and between 11 and 21 years of age. Overall, participants have shown fewer pregnancies, more regular use of contraception among the sexually active, better school attendance, and greater academic success, as compared with control groups of their peers (1, 2, 58).

TEEN TALK Teen Talk is a collaborative school and community health center-based sex and contraception education intervention for teens between the ages of 13 and 19. A field study of the intervention was conducted in both rural and urban communities in Texas and California. Teens of diverse ethnicities recruited from different agencies and schools participated. Participation in the program was especially beneficial to males, leading to a delay in the onset of sexual activity among male virgins and to the use of more effective contraception among male nonvirgins (14–20).

Four Promising Secondary-Pregnancy Prevention Programs

ELMIRA NURSE HOME-VISITING PROGRAM The Elmira Nurse Home-Visiting Program is a comprehensive program of prenatal and postpartum care originally designed for first-time mothers with limited social resources. Nurses visit pregnant and parenting women to (a) provide information about fetal and infant development, (b) enlist family and friends in providing care and support for the new mother, and (c) link family members to other health and human services. A field study of the intervention was conducted with 400 women, mostly white, in Elmira, N.Y. Each nurse followed a caseload of 20–25 families from pregnancy through each child's fourth birthday, typically making nine visits before the birth. By the final assessment period, 48 months postpartum, the program participants had experienced 43% fewer repeat pregnancies, postponed the birth of their second child 12 months longer, and participated in the work force 83% more months than did a comparable group of mothers assigned to the comparison group. Among the teenage mothers, in particular, an 80% reduction in the rate of child abuse was observed between the participant and comparison groups (54–56).

A HEALTH CARE PROGRAM FOR FIRST-TIME ADOLESCENT MOTHERS AND THEIR INFANTS Originally designed for low-income, unwed teens under 17 years of age, A Health Care Program for First-Time Adolescent Mothers and Their Infants is a clinic-based program that aims to help first-time mothers prevent repeat pregnancies, return to school, improve immunization rates for their infants, and reduce their use of hospital emergency room services for routine infant care. A field study and 18-month follow-up assessment of the intervention were conducted with 243 African-American mothers at an urban teaching hospital. Compared with a control group of teens receiving routine well-baby care, program participants experienced significantly fewer repeat pregnancies (12% vs. 28%), reduced their use of the emergency room for routine care, and were more likely to obtain full immunization for their newborns (57).

QUEENS HOSPITAL CENTER'S TEENAGE PROGRAM Queen's Hospital Center's Teenage Program is a clinic-based program to provide medical care, psychosocial support, and education to the adolescent, her partner, and her family. A field study of the intervention was conducted in Queens, N.Y., with 498 adolescents and their infants. Compared with a control group of teen mothers, program participants were more likely to attend and graduate from school and (for those who were sexually active) use regular contraception; additionally, both they and their infants experienced significantly better health. Moreover, the repeat pregnancy rate was significantly lower for program participants compared with that of the control group (60).

A SCHOOL-BASED INTERVENTION PROGRAM FOR ADOLESCENT MOTHERS A School-Based Intervention Program for Adolescent Mothers comprises a comprehensive array of services offered at an alternative public high school for pregnant students. A field study of the intervention was conducted with 102 low-income students at an alternative public school in New Haven. For the analysis, participants were split into two groups, and outcomes were compared for teens attending less than 7 weeks versus more than 7 weeks of the program. Overall, more favorable outcomes were observed for teens enrolled in the school for a longer period of time. At 2 and 5 years postpartum, these mothers were significantly less likely to have experienced a second pregnancy, and they showed significantly greater educational attainment and economic self-sufficiency (67).

Fifteen Promising STI/HIV/AIDS Prevention Programs

AIDS PREVENTION AND HEALTH PROMOTION AMONG WOMEN AIDS Prevention and Health Promotion among Women is a four-session program designed to assist participants between 16 and 29 years of age in developing sound sexual health. This program was field tested with low-income African-American and white women who were using medical center obstetrics services in Akron, Ohio. Compared with control groups, participants showed significant and sustained increases in HIV/AIDS knowledge, safer-sex goals, and safer-sex behaviors, including spermicide use and condom purchases and use (25, 42).

AIDS PREVENTION FOR ADOLESCENTS IN SCHOOL AIDS Prevention for Adolescents in School is a six-session program for high school students and is delivered by regular classroom teachers. The curriculum aims to improve students' knowledge, beliefs, self-efficacy, and risk behaviors concerning HIV/AIDS. A field study of the program was conducted with a predominantly African-American and Hispanic sample of students attending four New York City public high schools. Compared with a control group of peers, program participants scored significantly higher on measures of knowledge, beliefs about the benefits of risk reduction, and beliefs about their own ability to effect positive change (e.g. self-efficacy). At the three month follow-up assessment, the program was found to be particularly effective in reducing sexually active participants' numbers of sex partners and sex acts with high-risk partners and in increasing the use of condoms (78).

ARREST: AIDS RISK REDUCTION EDUCATION AND SKILLS TRAINING PROGRAM Originally designed for teens between 12 and 16 years of age, the AIDS Risk Reduction Education and Skills Training (ARREST) intervention includes three small-group sessions in which participants receive five forms of assistance: (a) information about the transmission and prevention of HIV/AIDS, (b) instruction in purchasing and using condoms with spermicide, (c) guidance in

self-assessment of risk behaviors, (*d*) training in decision-making, communication, and assertiveness skills, and (*e*) peer group support for HIV/AIDS prevention and risk reduction. Teens also engage in role playing, skill-building exercises, and homework activities. A field study of the program was conducted with 87 African-American and Latino youths in New York City. A comparison of four week follow-up measures for program participants with those for a control group of peers showed significant gains in knowledge and attitudes about AIDS among participants, as well as gains in sexual refusal and negotiation skills. However, no differences were found between the groups' risk-related sexual behaviors (36).

BE PROUD! BE RESPONSIBLE! STRATEGIES TO EMPOWER YOUTH TO REDUCE THEIR RISK FOR AIDS The Be Proud! Be Responsible! program targets multiethnic teens at the junior and senior high school levels. The curriculum aims to increase knowledge of HIV/AIDS and STIs, enhance feelings of pride, and build support for safer sexual behavior. In 1988, a field study of the intervention was conducted in Philadelphia with 157 youths. Compared with a control group of peers, program participants showed gains in knowledge about HIV/AIDS and risky sexual behavior immediately after and three months after the intervention. Participants also reported engaging in significantly less high-risk sexual behavior than their peers did at the three-month follow-up (32).

BECOMING A RESPONSIBLE TEEN Becoming a Responsible Teen (B.A.R.T.) is an 8-session HIV/AIDS risk reduction intervention specifically designed for African-American adolescents between 14 and 18 years of age. In small group discussions, role playing, games, and video segments with African-American actors, the program stresses the importance of condom use for those who are sexually active. It also incorporates STI/HIV/AIDS education with training and repeated practice in sexual assertion, self-management, problem solving, risk recognition, refusal, and partner negotiation. A field study of the program was conducted in Mississippi. Researchers measured a significant impact on several sexual risk behaviors, including an increased use of condoms during intercourse and a decrease in the number of sex partners. Among students who had not been sexually active at the start of the program, significantly fewer B.A.R.T. participants than control students became sexually active during the year after the intervention (69–71).

A CLINIC-BASED AIDS EDUCATION PROGRAM FOR FEMALE ADOLESCENTS The Clinic-Based AIDS Education Program for Female Adolescents is a single-session group intervention originally targeted toward sexually active girls between 13 and 21 years of age. The session, held at a hospital clinic, includes a brief lecture on the transmission and prevention of HIV/AIDS (based on CDC

guidelines) followed by a video explaining the purpose and use of condoms. As the session ends, participants receive coupons for obtaining condoms at a hospital pharmacy; the coupon redemption rate provides a measure of the program's impact. A field study of the intervention was conducted with 75 white and African-American females, all of whom were sexually active. Among prior purchasers of condoms, girls who took part in the intervention were significantly more likely to redeem the coupons than were control groups of their peers. Overall, 60% of program participants obtained condoms, a rate 2 1/2 times greater than that recorded in comparable programs without a confidential redemption procedure (62, 63).

GET REAL ABOUT AIDS Get Real about AIDS is a 14-session program for high school students, which emphasizes behavioral skills development. During the first seven classes, students study the transmission and prevention of HIV, teen vulnerability to the virus, and determinants of risky behaviors. Students then learn and practice skills to help them identify, manage, avoid, and leave risky situations. A field study of the curriculum was conducted in 17 Colorado high schools serving rural, suburban, and urban populations. At a six-month follow-up assessment comparing Get Real about AIDS participants with a control group of peers, program participants expressed greater intentions to reduce their level of sexual activity and use condoms in future sex acts; however, on behavioral measures of actual sexual activity, there were no significant differences between the two groups (46).

PODER LATINO: A COMMUNITY AIDS PREVENTION PROGRAM FOR INNER-CITY LATINO YOUTH Poder Latino is a community-based intervention that targets Latino youth, ages 14 to 20, at elevated risk for HIV/AIDS. Increased awareness of the disease is achieved by saturating target neighborhoods with public service announcements broadcasting risk reduction messages. In addition, the program aims to reduce infection by encouraging sexually active teens to use condoms. Project messages are reinforced through ongoing activities conducted by specially trained peer leaders, including workshops in schools, community organizations, and health centers, group discussions in teens' homes, presentations at large community centers, and door-to-door canvassing. In a field study of the intervention in Boston, researchers compared the sexual behavior of teens in the target community and a similar control community. At the 18-month follow-up assessment, the intervention was shown to reduce the incidence of multiple sexual partners among females and delay the onset of sexual activity among males (68).

AIDS RISK REDUCTION FOR COLLEGE STUDENTS Originally designed as a workshop for college students, AIDS Risk Reduction for College Students

consists of three 2-hour sessions incorporating information, motivation, and behavioral strategies for reducing AIDS risk. In a field study of the program with 744 college students, participants showed significant gains in knowledge, motivation, and behavior; in particular, sexually active participants were more likely than similar control students to purchase and use condoms during a two-to four-month period after the intervention (21).

RIKER'S HEALTH ADVOCACY PROGRAM Riker's Health Advocacy Program (RHAP) was originally developed for use with incarcerated male adolescent drug users between 16 and 18 years of age. A facilitator guides small groups in discussing general health, HIV and AIDS, drug abuse and its consequences, sexual behavior, health and AIDS-risk behaviors, and strategies for seeking health and social services. A field study of the curriculum compared the attitudes and behaviors of RHAP participants (primarily African-American and Hispanic) with those of a control group of teens selected from a waiting list for the program. After the intervention, program participants were more likely to use condoms during intercourse, compared with the control group of teens (45).

SAFER SEX EFFICACY WORKSHOP The Safer Sex Efficacy Workshop is a three-hour workshop designed to increase college students' self-efficacy or belief in their own ability to act successfully to prevent HIV/AIDS and other sexually transmitted diseases. The program includes mastery experiences, role modeling, and social persuasion and is led by specially trained peers. A field study of the workshop was conducted with 209 undergraduate students enrolled in a health education class. Compared with control groups of their peers, program participants showed significant increases in self-efficacy and in sexually active students' frequency of condom use at the two-month follow-up assessment (6).

ADOLESCENTS LIVING SAFELY: AIDS AWARENESS, ATTITUDES & ACTIONS FOR GAY, LESBIAN AND BISEXUAL ADOLESCENTS Designed to provide education, social and medical services, and peer support to gay and bisexual youths between 14 and 19 years of age, Adolescents Living Safely is a program that combines case management, comprehensive health care, and risk assessment counseling with small-group discussion. A field study of the intervention was initiated with 138 males at a community-based agency serving gay youths in New York City. African-American and white teens showed a significant decrease in unprotected anal intercourse at the three-month follow-up assessment; at six months, the decrease was recorded only among whites. On measures of unprotected oral intercourse, white and Hispanic youths engaged in fewer risky acts through the 12-month assessment. African-Americans maintained the decrease only until six months after the intervention (66).

ADOLESCENTS LIVING SAFELY: AIDS AWARENESS, ATTITUDES, AND ACTIONS To meet the comprehensive needs of runaway youths between 11 and 18 years of age, the Adolescents Living Safely program combines 20 small-group discussion sessions with case management and private counseling. A field study of the program was conducted at two urban shelters serving predominantly African-American runaways. For runaways who attended at least 15 sessions, the high-risk pattern of sexual behavior dropped in frequency from 20% to zero over a six-month period. At the two-year follow-up assessment, program effects remained strongest for male and African-American participants (64, 65).

YOUTH AIDS PREVENTION PROJECT Originally designed for African-American youth, the Youth AIDS Prevention Project (YAPP) aims to prevent STIs, HIV/AIDS, and substance abuse among high-risk junior high school students. The intervention includes 10 sessions for seventh grade students, delivered in regularly scheduled health or science classes, and a five-part booster session offered one year later. A field study of the intervention was conducted in 15 high-risk school districts in Chicago. After the booster session, students who first became sexually active during the study period were more likely than a control group of peers to report using condoms with foam; they also expressed greater intention to use condoms with foam in the future (43, 44).

YOUTH AND AIDS PROJECT'S HIV PREVENTION PROGRAM A community and university partnership launched the Youth and AIDS Project's HIV Prevention Program to provide education, peer support, counseling, and case management to gay and bisexual male adolescents between 13 and 21 years of age, who are at high risk for HIV/AIDS. A field study of the program was conducted with a predominantly white sample of males who identified themselves as gay or bisexual. After the intervention, the 139 participants reported less frequent unprotected anal intercourse and more frequent use of condoms (61).

LOOKING TO THE FUTURE

Although the effects of these programs have, for the most part, been modest and have been demonstrated on but a single site with but a single group of teens, they have in all likelihood been at least a partial contributor to the country's focus on the problem of teen pregnancy, a focus that has led to the sixth straight year of decline in the teen birth rate. The programs are diverse in terms of their population of interest, their approach, and their components. Viewing them as a group has led to some notion of what works in preventing teen pregnancy and teen STI/HIV/AIDS. Prevention program developers would be well advised to include these components of effective programs in future prevention programs.

Where might the field go from here? What lessons have we learned about developing pregnancy prevention approaches, programs, and initiatives?

1. An inclusive, eclectic approach is best. There is disagreement in the country about whether teen pregnancy prevention programs should focus on abstinence and/or contraception. The most effective programs convey a simple, two-part message: (a) Abstinence is the gold standard behavior for teens in middle and high school because, among other reasons, it is the only way to be 100% sure you will not get pregnant or cause a pregnancy to happen. (b) If, however, you do choose to have sex while still an unmarried teenager, you must use contraception and protect yourself from a sexually transmitted infection every time you have intercourse, including the very first time. Programs or communities that are uncomfortable with either part of this two-part message can choose to deliver only one of the parts. But they will not be transmitting the most powerful message that is available.
2. Continue strengthening programs by building on what we know regarding what works. Once a general approach is chosen, whether it be abstinence, sex education, contraception provision, youth development, a community-wide initiative, or a combination of these approaches, the focus in pregnancy prevention programming should shift to delivery of the strongest possible program, given existing resource and time constraints. To this end, the following research-based principles may be helpful: (a) Base your intervention program on a rigorous program model. A logical connection should exist between the components, length, and intensity (dosage) of each prevention program, media campaign, or community-wide initiative and both (i) the short-term outcomes and long-term impacts the intervention hopes to achieve and (ii) the age, culture, and level of risk of the target population. (b) Include characteristics, approaches, and components of effective programs. A dozen or so such characteristics, approaches, and components have been discerned by evaluation research and discussed in this paper (8, 38). (c) Start with programs that have been shown to work. Thirty such starting points have been described in this paper, 23 of which are available in already-packaged format from PASHA, the Program Archive on Sexuality, Health & Adolescence (8). (d) Replicate, adapt, and re-evaluate promising programs in other sites. PASHA is a research-based resource for practitioners. However, most of the programs in PASHA have been shown to work in only one site, with but a single group of teens. The field would be moved forward by continued traversing of the research-to-practice feedback loop. If programs shown to be promising by evaluation research, such as those selected by the PASHA Scientist Expert Panel, are delivered in other settings with new groups of teens, and if these replications or adaptations are then

re-evaluated themselves, we will start to have a more definitive notion of what works, for whom, and under what circumstances.

3. Continue strengthening evaluations. The move toward definitive answers to "What works?" needs not only stronger programs but stronger evaluations as well. (a) Use state-of-the-art evaluation methodology. Evaluation methodology has progressed in recent years. A research design that uses random assignment to treatment and control groups when possible (or quasi-experimental designs when not), with sufficient sample sizes and power to detect hypothesized effects and with rigorous efforts for combating attrition in both the treatment and control groups, should be the standard for evaluations seeking to answer the question "What works?" When such standards cannot be met, a process evaluation measuring the extent to which the program has delivered the services or intervention as planned can still be very helpful. But a process evaluation cannot speak to the effectiveness of one's effort in changing sexual or contraceptive behavior among participating teens. Thus it cannot help answer the question of how we can prevent teen pregnancy. (b) Advance the state-of-the-art for evaluating the effectiveness of media campaigns and community-wide initiatives. As this paper has pointed out, teen pregnancy is a complex problem that is rooted in an elaborate constellation of societal, familial, and individual antecedents. Effects of individual programs have been real but modest. Attempts are being made to develop and deliver larger-scale interventions, such as media campaigns and community-wide initiatives. The state-of-the-art for evaluating the effect of these broad efforts on individual behavior and community pregnancy or birth rates is still primitive. Methodological advances are in order. (c) Lengthen the time frame for the evaluation, especially for programs aimed at middle school children. There is consensus in the field that the standard for evaluating program effectiveness should be sexual, contraceptive, and STI-protective behavior and not knowledge, attitudes, or intentions. After all, broad and accurate knowledge, good attitudes, and good intentions are not what prevent pregnancies or sexually transmitted infections. When this standard (behavioral change) is applied to evaluations of pregnancy prevention programs aimed at middle school children, it will be difficult to document an effect unless the time frame for the evaluation is much longer than the 6- to 12-month post-program follow-up used by most evaluation research studies. This is so because less than a quarter of the general population have intercourse before the age of 15, the age at which students move from middle school to high school (49). This means that, 6 to 12 months post-program, only a very small minority of "hard core," harder-to-reach middle school students will have had sex. It would take an unusually strong intervention

to document any behavioral effects. Evaluation of middle school programs should either relax the outcome criteria to include changes in sexual values, attitudes, and intentions (as proxies for future behavior) or plan for a longer evaluation time frame (waiting until the teens reach high school before collecting the last round of follow-up data). Of course in a high-risk middle school population this concern would not be as serious, as larger percentages of students in both treatment and control groups would be expected to have made, or be in the process of making, the transition to nonvirginity.

Prevention programs do tell part of the story of how teen STI, pregnancy, and childbearing rates can be lowered. But they tell only part of the story. In the end, more rapid progress will likely be made if (a) national consensus can be reached, or at least common ground increased, on the nature of the problem and on acceptable solutions and (b) all programs become sensitive to the larger context and culture in which their teens exist, so that the problem is always seen through the eyes of the teenagers themselves, whom these programs seek to serve.

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