

Pregnancy Prevention Among Urban Adolescents Younger than 15: Results of the 'In Your Face' Program

By Lorraine Tiezzi, Judy Lipshutz, Neysa Wroblewski, Roger D. Vaughan and James F. McCarthy

Data from a pregnancy prevention program operating through school-based clinics in four New York City junior high schools suggest that an intensive risk-identification and case-management approach may be effective among very young adolescents. Among students given a referral to a family planning clinic for contraception, the proportion who visited the clinic and obtained a method rose from 11% in the year before the program began to 76% in the program's third year. Pregnancy rates among teenagers younger than 15 decreased by 34% over four years in the program schools. In the fourth year of the program, the pregnancy rate in one school that was unable to continue the program was almost three times the average rate for the other three schools (16.5 pregnancies per 1,000 female students vs. 5.8 per 1,000).

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The problem of teenage pregnancy in the United States is far from resolved, especially among very young adolescents and minorities. In 1990, an estimated one million pregnancies occurred among U.S. teenagers; 28,000 of these were among adolescents younger than 15.¹ Although the overall pregnancy rate for adolescents has declined, the rate for those younger than 15 continues to climb. Among the 39 states that reported pregnancy rates for teenagers younger than 15 in 1991-1992, 20 reported increases, nine reported no change and 10 reported a decrease. In contrast, only five of the 42 states that reported pregnancy rates among 15-19-year-olds reported an increase for that age-group.²

The pregnancy rate among minority youth is twice as high as that among white teenagers, and appears to be rising: Between 1980 and 1988, it increased from 181 to 184 per 1,000 among nonwhites, while

it decreased from 96 to 93 per 1,000 among whites.³ Minority adolescents are disproportionately represented among teenagers who give birth; of the 38 states that reported rates for 1991-1992, 27 reported an increase in birthrates among Hispanic adolescents, whereas only six of 50 states reported an increase in birthrates among non-Hispanic white teenagers.⁴

Although no research has been conducted on factors contributing to the risk of pregnancy specifically among the youngest teenagers, some studies have examined the issue among all adolescents. Nonuse or inconsistent use of contraceptives is a major factor: Approximately 35% of unmarried, sexually active teenagers use no form of birth control at first intercourse,⁵ and a sexually active teenager who does not use birth control has a 90% chance of becoming pregnant within a year's time.⁶

One reason for nonuse of contraceptives may be an imbalance of negotiating power resulting from the age discrepancy between many teenage women and their partners; approximately 60% of mothers aged 15-17 report that their partner is at least three years older than they are.⁷ Young minority adolescents are especially at risk of pregnancy, as nonwhites are likely to engage in sexual intercourse at a younger age than whites.⁸

Programs aimed at reducing or preventing teenage pregnancies, especially among younger adolescents, must overcome several formidable financial and logistical barriers.⁹ School-based clinics have long been regarded as an effective means of overcoming some of these barriers by providing convenient, affordable, com-

prehensive health care to adolescents, and have been the site of several successful prevention programs.¹⁰ Many of these clinics, however, are prohibited from dispensing contraceptives. Rather, students must obtain contraceptives by prescription from an off-site source, a requirement that presents them with yet another barrier. Even if school-based clinics are able to provide contraceptives on-site, they need a rigorous follow-up mechanism to ensure that each adolescent receives counseling regarding the decision to become sexually active, chooses and receives an appropriate contraceptive, and is using the chosen method.

In 1986, the Center for Population and Family Health (CPFH) at the Columbia University School of Public Health, in collaboration with the Presbyterian Hospital in the City of New York and with New York City School District 6, established its first comprehensive school-based clinic. It now operates school-based clinics in four junior high schools and one high school in economically disadvantaged and medically underserved areas of New York City. These clinics, their services and their client population have been described elsewhere.¹¹

In 1992, CPFH introduced a health education pilot program focusing on pregnancy prevention as part of clinic services. The pilot was then expanded into all four of the junior high schools served by CPFH. These schools have approximately 3,500 students, the majority of whom are immigrants from the Dominican Republic. This article describes the pregnancy prevention program and reports on the outcomes in its first four years of operation.

Program Description

The "In Your Face" pregnancy prevention program was designed to reduce the risk of unintended pregnancy by providing information, counseling, support and referral for reproductive health care. Students were targeted for this health education intervention in a variety of ways.

A confidential schoolwide health and risk factor screening survey¹² was administered annually by CPFH staff; typically, the screening captured about 85% of

Lorraine Tiezzi is program director and assistant clinical professor of public health, Judy Lipshutz is health education coordinator, Neysa Wroblewski is a health educator, Roger D. Vaughan is evaluation coordinator and assistant professor of clinical public health and James F. McCarthy is director of the Center for Population and Family Health (CPFH) and the Harriet and Robert Heilbrun Professor, Columbia University School of Public Health, New York. This investigation was a collaborative effort of the Center for Population and Family Health, Presbyterian Hospital, the Ambulatory Care Network Corporation and New York City School District 6. The program received support from the Aaron Diamond Foundation, the Engelberg Foundation, the Carnegie Foundation and the New York State Department of Health. The evaluation of the program was made possible by a grant from the Esther A. and Joseph Klingenstein Fund, Inc., and by general support for the CPFH program evaluation unit from the William and Flora Hewlett Foundation and the Andrew W. Mellon Foundation.

the student population. The survey, which was available in English and Spanish and took 25–30 minutes to complete, identified students who were sexually experienced and those who had characteristics correlated with sexual activity. These characteristics included alcohol and substance use by students or by their parent or guardian, having run away from home or having manifested some indicator of an underlying psychiatric or mental health problem, such as a suicide attempt or chronic depression.

Students who reported sexual activity or characteristics correlated with sexual activity were referred to the health educator. If the health educator determined that a student's survey responses were accurate, the student was invited to participate in the In Your Face health education program.

Other students entered the program after visiting the health educator because of referrals from the clinic-based medical providers and social workers, teachers and guidance counselors, or through self-referral. Many of the students who came on their own had heard a classroom presentation given by the health educator, informing students of the clinic location, hours and services.

From the pool of students identified as being at risk of pregnancy, the health educator in each school formed a number of groups, each consisting of 5–10 students. The groups met at least once a week during the school year. The program relied on group meetings as well as individual counseling; groups made efficient use of the health educator's time, created peer groups in which new norms could be established and provided a support group to reinforce positive attitudes and behavior.

The In Your Face intervention consisted of several components—group education, individual education and counseling, interdisciplinary support (i.e., a team approach, with input from social workers, medical providers and psychiatrists), referrals and classroom interventions, plus other special events and projects. In the group setting, the health educator delivered a series of 15 lessons based on the "Reducing the Risk" curriculum,¹³ which had been reviewed and modified to be sensitive to the culture and language of the students. The lessons focused on such topics as knowledge, behavior and decision-making skills. However, since purely didactic lessons usually "turn off" adolescents, the intervention incorporated role-playing exercises, group games, brainstorming exercises and audiovisual presentations. Throughout the sessions, students ex-

plored ways to assess their own risks and identify behavioral cues of risk.

Saying no to sex was explored as an important and valid option. Students already involved in sexual activity were encouraged to abstain. For those continuing sexual activity, individual sessions were scheduled to discuss the available array of contraceptive methods, offer counseling about each option and provide referrals to obtain contraceptives. Each of these options was discussed in an open, honest, nonjudgmental way.

Dispensing contraceptives and prescriptions in junior high school clinics is prohibited in New York City; therefore, a referral mechanism enabled sexually active students to receive contraceptives at one of two satellite hospital clinics—the Young Adult Clinic and the Young Men's Clinic—which are jointly operated by CPFH and the Ambulatory Care Network Corporation of Presbyterian Hospital. The clinics, which offer a full range of medical and mental health services, are staffed and administered by CPFH health care workers.

The benefits of this arrangement are enormous: The students see the same staff they see in their own school-based clinics; record-keeping, transfer of information, compliance and follow-up are greatly enhanced; and students receive greater continuity of care. The health educator in the school-based clinic who refers a student to either of the satellite clinics acts as a case manager for that student; the educator organizes all documentation and paperwork required, meets the student at the clinic, oversees the visit at the clinic and tracks any lab test or follow-up needed. In this way, the health educator serves as a mediator and a guide for the student, essentially removing structural barriers to appropriate contraceptive services.

Sexual activity is related to and may indeed result from other events or conditions in an adolescent's life. Therefore, the health educator's ongoing case management is supplemented by regular follow-up meetings of an interdisciplinary team of nurse practitioners, social workers and physicians who work in the school-based clinic. A student who has been identified as having a serious medical or psychosocial problem is referred to the appropriate clinic provider, and the case is co-managed by all the providers involved. This "whole-person" approach to pregnancy prevention is a key component of the In Your Face program; trustworthy, competent and caring health providers are "in the student's face" to ensure that he or she obtains appropriate care.

Research Design

Adolescent health programs in general, and pregnancy prevention programs in particular, are often designed and implemented without the benefit of a thorough and rigorous evaluation of the effectiveness of specific program approaches. However, the research designs that are typically seen as the best present serious challenges to community health programs such as the one described in this article. The best research design would have entailed random assignment of students to treatment and control groups, with the treatment group receiving the intensive In Your Face program and the control group receiving only services routinely available through the school-based clinics. We did not use this approach because we could not justify withholding this potentially useful intervention from a portion of the students for the sole purpose of implementing a strong research design.

Another option was to select a control group consisting of junior high schools that were as similar as possible to the experimental schools in every aspect and dimension, both demographic and programmatic, except for the In Your Face program. However, it would have been difficult, if not impossible, to find a second group of junior high schools that had a student population predominantly made up of immigrants from the Dominican Republic, that had school-based clinics and that had environmental and economic conditions that were comparable to those of the program schools.

In addition, we could have compared the outcomes of students who participated in the In Your Face program to the outcomes of those who did not participate. However, because we attempted to reach all students at risk through multiple outreach mechanisms, a control group composed of those who were not involved in the program would tend to be at lower risk and would therefore bias the estimate of program effectiveness.

Another possibility was to assign students to different levels of the intervention. We chose not to use this approach because we believed that all students should have access to the full program. Inferences about "dose" effects could not be based on student attendance because such an approach would seriously confound program effects with student characteristics related to attendance.

Given these constraints, we decided to rely on what Cook and Campbell refer to as a one-group pre- and post-test design.¹⁴ Although Cook and Campbell caution

that one should not try to draw "hard-headed causal inferences" from studies using this design, they consider that "inferences may be possible."

Data and Analysis

CPFH maintains its own tracking and data analysis system. Each time a student makes an individual visit to a school-based clinic, the provider records the reason for the visit, diagnoses, sexual behavior, problems identified, services rendered and referrals (among other information) on a comprehensive clinic visit form. Logs are kept of group attendance and visits to the hospital satellite clinics.

Pregnancy data for this analysis were compiled from clinic records. Young women who suspected that they were pregnant were referred to the clinic for testing, or came on their own. In addition, sexually active students who had symptoms consistent with pregnancy when they visited the clinic for other reasons were offered pregnancy tests and were referred to the health educator and social worker for counseling and follow-up. Although this data collection method may have missed some pregnancies, conversations with students and staff indicated that students were likely to come to the clinic if they were pregnant, because they felt that they would be treated with respect and that the clinic "was the place to go to get help."

The data from student clinic visits and the results from the schoolwide risk survey were linked by a unique nine-digit identification number assigned to each student by the school system. Using data sets that were linked across visit type, locations and years, we were able to compile a variety of descriptive statistics and cross-tabulations.

Table 1. Percentage distribution of students in program schools, and percentage with selected risk factors, all by demographic characteristics, 1992–1993 (N=3,738)

Characteristic	Total	Ever had sex	Ever considered suicide	Assaulted someone in past year
All	100	20	14	18
Gender				
Female	46	7	19	8
Male	54	31	10	27
Race/ethnicity				
Hispanic	81	18	14	17
Black	10	33	12	32
Other	9	16	13	17
Grade level				
6	35	16	14	19
7	33	18	14	19
8	32	25	14	17

Results

Table 1 describes the population of students in the schools served by the In Your Face program during its first year (1992–1993); the social and demographic characteristics of the population remained relatively stable over the study period. A substantial majority (81%) of the students described themselves as Hispanic (generally Dominican), 10% as black and 9% as members of other racial groups. Despite their young age (mean, 12.9 years), 20% had already had sexual intercourse, 18% had assaulted someone and 14% had thought about suicide.*

Because so-called "problem behaviors" tend to cluster, we expected that students enrolled in the program—whom we had actively recruited because they had been identified as being at risk of pregnancy—would report more risk factors in the schoolwide screening survey than would those who either did not use the school-based clinic services or who used the clinic but were not enrolled in the program. Indeed, the data presented in Table 2 show much higher risk profiles among students who were in the program (approximately 250 each year). Differences across categories for each risk variable in the table are significant (by the chi-square test) at the $p < .001$ level.

One of the goals of the In Your Face program was to reach as many as possible of the adolescents identified as sexually active. Because there was only one health educator in each school, and because the daily absentee rates in the four schools ranged from 10% to 20%, we were unable to achieve this goal. Information gathered by the health educators about sexually active students who were not reached by the program indicated that the vast majority could not be contacted because of what the schools classified as "consistent absenteeism" or "ongoing truancy." However, the success rate of the program in enrolling students classified as "currently sexually active" (defined as having had sex in the past three months) increased by nearly half over the first three years, from 50% of sexually active students in 1992–1993 to 74% in 1994–1995.

Changes in several outcome measures suggest that the program was effective. As

Table 2. Percentage of students in program schools, by use of clinic services and program participation, according to year and risk factor

Year and risk factor	All	Never used clinic	Used medical social-work services only	Participated in program
1992–1993				
Ever had sex	20	7	9	33
Ever considered suicide	14	11	16	26
Involved in assault in past year	18	6	9	27
1993–1994				
Ever had sex	16	8	11	42
Ever considered suicide	3	2	2	6
Involved in assault in past year	7	6	7	20
1994–1995				
Ever had sex	18	8	12	48
Ever considered suicide	2	1	2	3
Involved in assault in past year	7	4	7	12

we noted earlier, one of the program's objectives was to encourage sexually active students to consider abstinence. In 1994–1995, 25% of the students in the program who had ever had sex indicated that they had chosen to become abstinent (this question was not asked in previous years).

In addition, among students who chose to remain sexually active but were not using contraceptives consistently, the proportion who were successfully referred to the off-site family planning clinic increased from 25% (14 of 56) during the year before the program began to 85% (80 of 94) in the program's third year (Table 3, page 176). The majority of these students were female: In 1993–1994, for example, only 7% of those who completed referrals were male (not shown). Overall, among students who were referred to the clinic, the proportion who adopted a method increased from 11% (6 of 56) in the year before the program began to 76% (71 of 94) in the program's third year.

We calculated the overall pregnancy rate for the four junior high schools served by the In Your Face program by dividing the number of pregnancies occurring in the school as a whole by the number of female students enrolled midway through the year, regardless of whether they participated in the program. The rate decreased from 8.8 per 1,000 female students in 1992–1993 to 5.3 per 1,000 in 1993–1994 and then increased to 6.8 per 1,000 in 1994–1995. (Unfortunately, the number of pregnancies in prior years had not been recorded.) The

*The wording of the question asking about thoughts of suicide was changed after the first year to more accurately identify students who had actually tried to commit suicide or had considered doing so. Thus, the proportions reporting thoughts of suicide are considerably lower in subsequent years.

Table 3. Among sexually active students who were not consistently practicing contraception, number who were referred to the family planning clinic, who visited the clinic and who adopted a method, by year

Year	Referred to clinic	Visited clinic	Adopted a method
1991–1992	56	14	6
1992–1993	79	35	26
1993–1994	94	85	80
1994–1995	94	80	71

decrease in the pregnancy rate mirrors the corresponding increases in the rates of referral for and acceptance of contraceptives.

In 1995–1996, one of the four schools was unable to operate the program because of a one-year lapse in funding. For that year, the three participating schools had a pregnancy rate of 5.8 per 1,000 female students, compared with a rate of 16.5 per 1,000 in the nonparticipating school. Thus, the removal of the In Your Face program components from the fourth school may have been associated with an increase in the pregnancy rate.

Comparisons between the pregnancy rate in the program schools and the regional rate for adolescents younger than 15 are not possible because regional data for the period of our study are not available. Between 1990 and 1993, however, the pregnancy rate for adolescents younger than 15 in Manhattan rose from 6.2 per 1,000 to 7.4 per 1,000, a 19% increase.¹⁵ The rate in the schools operating the program declined by 34% between 1992 and 1996.

Discussion

The results presented in this article demonstrate that well-designed, well-implemented programs may be able to lower pregnancy rates among very young, high-risk adolescents. The In Your Face program used approaches based on commonly accepted standards of quality public health and clinical practice. The program draws on the public health principle of taking a population-based approach to the diagnosis and treatment of a given condition.

The In Your Face program collected risk factor information from the great majority of students in four junior high schools through the use of a schoolwide screening survey. This information was used to identify students who were in need of the program services; program staff then sought out and invited students identified as at risk to participate in the program. Once in the program, these students were provided, in effect, with both intensive case management and continuity of care,

two hallmarks of quality medical care.

The pregnancy prevention program described in this article was not expensive. Its cost consisted of the salary of one health educator placed in each school, serving approximately 1,500 students. The health educators worked in existing school-based clinics, and clearly benefited from the infrastructure available through those clinics. Fortunately, school-based clinics are now available in many schools, and this model of intensive pregnancy prevention efforts, with its emphasis on aggressive case identification and management, can be applied in such schools.

Our study has some major limitations that must be acknowledged. It was not designed as a controlled trial; therefore, alternative explanations for the decrease in pregnancy rates must be explored. The program may simply have documented a natural or ecological decline in pregnancy rates.

Several factors, however, argue against this explanation. First, the most recent New York State Department of Health statistics indicate that state and city pregnancy rates were on the rise among all adolescent age categories in the four years prior to the inception of the In Your Face program (1990–1993). It seems unlikely that a natural decrease in pregnancy rates started the same year the program began.

Second, the decrease in pregnancy rates corresponded with the increase in factors that seem necessary for pregnancy reduction—identification of “at-risk” students and increases in referral rates and family planning acceptance rates. Third, the unintentional “crossover” design, in which one of the four program schools dropped out of the treatment group and was transformed into a control group, provides a comparison that demonstrates that the pregnancy rate dramatically increased in the school from which the program components were removed, while it continued to decrease in the schools that retained the program. Although none of these factors alone is powerful enough to prove that it was the program that caused the decrease in pregnancy rates, rather than some combination of unmeasured factors, the available evidence argues against alternative explanations and for program effectiveness.

The design on which our evaluation is based is limited; however, CPFH’s strategy for monitoring and evaluation helped compensate for many of these constraints. First, it monitored changes in behavior and other outcomes over time. Second, we collected and analyzed not only data on

program inputs (process data) and results (impact data), but also information on intermediary data that lie in the hypothesized causal pathway of the outcome of interest. Therefore, an important part of our overall approach to program evaluation is the collection of extensive data on the various phases of the program, to ensure that the entire process of the program worked as hypothesized.¹⁶

Early childbearing is a symptom and a consequence of the extreme poverty that pervades urban, minority communities in the United States. The long-term solution must address the basic economic conditions that give rise to early childbearing and to limited opportunities. However, results from this study demonstrate that public health programs, in the absence of fundamental economic change, can help some adolescents to avoid early pregnancies and to delay the start of childbearing.

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