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Condom Availability Programs in U.S. Schools

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School condom availability programs have been promoted as a promising approach for increasing condom use among students, for reducing the risk of infections with the human immunodeficiency virus and with other sexually transmitted diseases and for preventing unintended pregnancy. Data from a telephone survey of key individuals at school condom programs across the United States suggest that as of January 1995, at least 431 public schools in 50 U.S. school districts made condoms available—2.2% of all public high schools and 0.3% of high school districts. In about half of the schools that were surveyed, students obtained more than one condom per student per year, on average, and in 14% students obtained more than six. Students in alternative schools, in smaller schools, in schools that made condoms available in baskets and in schools with health clinics obtained more condoms per student per year than did students in other schools.

(Family Planning Perspectives, **28:**196-202, 1996)

Through unprotected sexual intercourse, large proportions of U.S. adolescents are exposed to infection with the human immunodeficiency virus (HIV), become infected with other sexually transmitted diseases (STDs) or experience unintended pregnancies.[1] In response to these problems, an increasing number of schools have implemented comprehensive programs to reduce sexual risk-taking; many of these make condoms available to students as one component of the program.

School condom availability programs have engendered both strong support and strong opposition. For example, the American College of Obstetricians and Gynecologists, the American School Health Association and the National Medical Association have all adopted policies recommending that condoms be made available to adolescents as part of comprehensive school health programs.[2] Other, more conservative groups (e.g., the Family Research Council, Focus on the Family and the Rutherford Institute) strongly oppose school condom availability.

Several contemporary models of health behavior predict that school condom availability programs will increase condom use if they can change students' perceptions of their peers' norms about condom use, if they can increase students' self-efficacy in getting and using condoms, if they can remove barriers to obtaining condoms or if they can create an environment that facilitates and reinforces condom use.[3] School condom programs may remove barriers to condom acquisition by

reducing teenagers' embarrassment at obtaining condoms, by eliminating the cost and by improving access.

The impact of these barriers on actual condom use among adolescents is not well measured. Moreover, there is little research on how common condom availability programs are in U.S. schools or on how many condoms such programs provide. A 1992 survey of 299 high school and middle school districts estimated that 13% of U.S. students attended school in districts that had discussed condom programs "a lot," while an additional 21% were in districts that had discussed them "some."[4] This survey also found that seven of these 299 school districts (or 2.3%) had actually implemented such a program. Because those districts tended to be relatively large, it was estimated that 8% of all U.S. students were in school districts with condom programs.

A 1993 review that presented preliminary data on the numbers of youths in schools who obtained condoms and on the numbers of condoms obtained found large variations in students' use.[5] Moreover, in a Colorado high school that provided free condoms, only 16 students obtained them two or more times during the first year of distribution; two years later, however, after additional school staff began making condoms available, 171 students obtained condoms two or more times.[6] In Falmouth, Massachusetts, condoms were offered in vending machines for 75 cents and through the school nurse free of charge. Students purchased about 60 condoms per month from the vending machines, but obtained about 350 condoms per month from the nurse.[7]

A study of three school-based clinics that provided free condoms revealed that 15-18% of sexually experienced males had obtained condoms from the clinics,[8] but many did so only once. In contrast, a Santa Monica high school with approximately 2,700 students distributed 1,300-1,500 condoms per month.[9] Each of five Baltimore schools with school-based clinics distributed from about 100 to almost 600 condoms monthly over a seven-month period beginning in fall 1991.[10]

Thus far, no studies of the impact of condom availability programs alone upon students' sexual behavior or condom use have been published. However, some school-based clinics that provide condoms or other forms of contraception along with more comprehensive health services have been studied. One study of three such school-based clinics revealed that the presence of the clinic was not associated with greater sexual activity, and that condom availability was not significantly associated with greater condom use by students in the respective schools.[11]

In an isolated rural South Carolina community, a comprehensive school and community campaign made condoms available through the school nurse.[12] However, condom availability was not the focus of the program: Teachers, administrators and community leaders were given training in sexuality education; sex education was integrated into all grades in the schools; peer counselors were trained; the school nurse counseled students, provided male students with condoms and took female students to a family planning clinic; and local media, churches and other community organizations highlighted special events and reinforced the message of avoiding unintended pregnancy.

After the program was implemented, the pregnancy rate for 14-17-year-olds declined

significantly for several years. After parts of the program ended (e.g., the school nurse was prevented from providing condoms and some teachers left the school), pregnancy rates returned to preprogram levels. Unfortunately, it is not known whether the changes in the pregnancy rate were related to chance variations, to the availability of condoms and transportation to nearby family planning clinics, or to other program components.

The research described here represents the first attempt to identify all school condom availability programs in the United States, to measure some of the characteristics of such schools and their programs, to estimate the numbers of condoms students actually obtain from these programs and to assess the relationship between school and program characteristics and the numbers of condoms distributed. However, this article cannot answer all of the many questions about school condom programs, particularly since we could not measure the impact of condom programs upon students' sexual behavior and actual condom use.

METHODS

Identification of Schools

School personnel who develop relatively new and nontraditional types of programs are likely either to contact their respective state boards of education, to contact other schools that have developed similar programs, to attend national meetings where such programs are discussed or to contact national organizations knowledgeable about them. Therefore, we used these four possibilities to identify school condom availability programs. First, we contacted every state department of education and interviewed one or more people in each department who we believed would be most knowledgeable about such programs in their respective states. In a few states, such as Massachusetts (which had recommended that districts consider making condoms available), individuals at the state level kept very good records and were very informative.

Second, we merged lists of condom programs from institutions knowledgeable about or tracking such programs (e.g., Advocates for Youth and the National School Boards Association). These lists provided large numbers of school condom programs.

Third, we networked with professionals in the field and at professional meetings where presentations about school condom programs were given. Finally, we telephoned the staff members at most existing programs and asked them if they knew of any other programs in their state that were already in operation or about to be implemented. This "snowball" approach added some additional programs.

We believe that the above four approaches probably enabled us to identify nearly all of the school condom availability programs that existed as of January 1995. Since then, a number of school condom availability programs have received attention (such as a Falmouth, Massachusetts, program involved in a State Supreme Court case), but in all instances we had already identified these programs.

TELEPHONE INTERVIEWS

After identifying schools, we completed telephone interviews with staff members. First, we developed two telephone interview protocols—one for administrators and

school board members and one for teachers and nurses—and pilot-tested them at three sites. Once we had made initial revisions in the protocols, we began to telephone programs; after completing additional interviews, we made further changes in the protocols, and then recontacted the previous respondents to obtain the added information.

Both protocols included an introduction and questions about the adoption and implementation of the program, school characteristics, program components and characteristics, the numbers of condoms provided, positive and negative perceptions of the program, any evaluation activities that were conducted and suggestions for other districts considering programs. The questionnaire included 42 closed-ended questions and an additional 42 open-ended questions.

All respondents were asked the same 84 questions. However, the amount of probing on different topics varied with the respondent's specialty. In general, the protocol for administrators and school board members included more probing on program adoption and implementation, while the protocol for the nurses and teachers included more probing on program characteristics and student reactions.

We made numerous calls to each school, both to schedule interviews and to conduct the interviews themselves. Commonly, we completed each interview during a single phone call; sometimes a second call was required, either because there was not sufficient time to complete the interview or because the respondent needed to collect additional information. Interviews lasted 20-90 minutes.

Typically, we first interviewed someone in the district superintendent's office and then spoke with local school personnel who were most familiar with that school's condom availability program. Because different people in the same school had different views of the condom program, particularly about its adoption, we usually interviewed two or more people from each school.

We were able to collect information from all school districts known to have adopted school condom programs and from 98% of schools known to make condoms available. We could not, however, collect information on all variables for all schools. Thus, some tables presented in this article have smaller sample sizes than others.

MEASURES

Many questions on the interview protocol could easily be answered by the respondents (e.g., whether parental consent was required, who provided condoms to students or how many condoms could be provided at one time). However, two important quantitative questions also needed to be answered: How many students were in the school, and how many condoms were distributed during the preceding year.

Respondents used school records to report the number of students enrolled in the school at the time of the interview. These estimates undoubtedly exaggerate somewhat the number of students in each school, because enrollment figures often include some students who have in fact dropped out. In addition, the amount of this bias undoubtedly varies from school to school.

Estimates of the number of condoms obtained by students typically were taken from records or counts. At many schools, a central person (e.g., the school nurse) provided

other school personnel with condoms for students. That person, in turn, typically received condoms in cases of 1,000 from the district or from the local public health department. Most of these central people kept records of how many condoms had been received and how many had not yet been distributed. In Los Angeles, the school district kept records of the numbers of condoms sent to each school; thus, a single source provided accurate data for all schools in that district.

In other schools or school districts, records either were not kept or were too unreliable. In these schools, we asked the central person to keep careful track of the number of condoms distributed during the months following the first interview. We asked them to track condoms for at least three months, although most did so for a semester. We also asked if those months were typical of all months during the academic year, then extrapolated from that period to the entire academic year, adjusting our estimate upward or downward to reflect the representativeness of those months.

Regardless of how respondents estimated the number of condoms obtained by students, these estimates were never based upon data from the first few months of a program's operation. (Data from a few sites indicated that the number of condoms distributed during a program's first few months differed substantially from the numbers provided in subsequent months.)

In general, the estimates presented in this article undoubtedly include some error. In particular, the numbers of condoms obtained by students are probably conservative estimates, because some teachers and nurses may have obtained condoms from sources other than the central sources, and these data would not have been included in our estimates.

CONDOM PROGRAMS

District Characteristics

We identified 50 school districts with condom availability programs. Although they are distributed throughout 21 of the 50 states, a large majority of these programs, especially those not involving school-based clinics, are in the northeastern, southern and western states. Many large cities make condoms available, if not in all or nearly all schools (e.g., the District of Columbia, Los Angeles, New York, San Francisco and Seattle), then at least in some schools (e.g., Baltimore, Chicago, Dallas, Houston and Philadelphia). Although many smaller school districts also make condoms available, they are less likely to do so than large urban districts.

Most of the decisions to make condoms available in schools were made and approved at the school district level. By the beginning of 1995, 52 public school districts had formally adopted condom availability programs. Two subsequently reversed their decisions and ended the programs; the remaining 50 constitute only 0.3% of all public school districts in this country. Thus, despite the considerable publicity surrounding school condom availability, only a very small proportion of all school districts have adopted such programs thus far.

The greatest number of school districts implementing condom availability programs did so in 1991 and 1992 (Table 1). Most programs begun before 1991 were initiated in

districts with school health clinics. However, 65% of districts implementing programs since 1991 did so without school-based health centers. Notably, 18 of the 26 nonclinic programs begun between 1991 and 1994 were in Massachusetts, perhaps in response to a state department of education recommendation that all districts consider condom availability programs as part of their HIV education efforts.

Table 1. Number and percentage of school condom availability programs at school-district and individual-school level, by whether there is a school-based clinic present, according to the year the program was adopted, United States, Jan. 1995

Year	All	Clinic		No clinic		Total
	N	N	%	N	%	
DISTRICTS						
Total	50	23	46	27	54	100
1978-1990	10	9	90	1	10	100
1991-1992	23	10	43	13	57	100
1993-1994	17	4	24	13	76	100
SCHOOLS						
Total	421	92	22	329	78	100
1978-1990	28	24	86	4	14	100
1991-1992	341	47	14	294	86	100
1993-1994	52	21	40	31	60	100

SCHOOL CHARACTERISTICS

Within the 50 school districts that have programs, there are 431 schools that make condoms available. The vast majority of these are high schools (92%). Only 4% are junior high schools or other kinds of schools; 4% are combined junior-senior high schools. Thus, condom availability programs are ongoing in only 2.2% of all U.S. high schools.

A large majority of school programs (81%) were implemented in 1991-1992, because the Los Angeles and New York City school districts mandated that high schools make condoms available as part of more comprehensive efforts to reduce HIV transmission.[*] Only 7% of school condom programs were begun prior to 1991, and most of these (86%) were part of school-based clinics (Table 1).

Most condom availability programs are located in regular academic schools (72%); 28% are in alternative schools.[‡] Alternative schools clearly are overrepresented among schools with such programs.

PROGRAM CHARACTERISTICS

Schools make condoms available through a variety of mechanisms (Table 2). At 54% of schools that make condoms available, nurses provide condoms to students, while teachers do so at 52%, counselors at 47% and principals at 27%. In only a small percentage of schools are condoms provided in bowls or baskets (5%) or through vending machines (3%) or do students make condoms available to other students (2%). (Schools where students supply condoms have strong peer-education programs, and the few students involved in condom provision are trained in HIV education and peer counseling.)

Table 2. Percentage of schools, by program characteristics (N=421)

Characteristic	%
Method of providing condoms	
Principals	27
Teachers	52
Counselors	47
Nurses†	54
Other health workers‡	29
Other school personnel	13
Students	2
Bowls/baskets	5
Vending machines	3
Restrictions	
Active parental consent is required	10
Passive parental consent is required	71
Counseling is required§	49
Condoms are made available only at selected times	40
Number of visits each week is limited	7
Number of condoms provided at visit is limited	74
Students must pay for condoms††	1
Program components	
Available counseling	98
K-12 sex education curriculum	50
K-12 HIV education curriculum	51
K-12 sex education or HIV education curriculum	55
School health center	24
Other supportive activities‡‡	78
†Includes both school nurses employed by the school districts and nurses in school based health clinics employed by outside health agencies. ‡Includes health educators from outside health departments or family planning agencies and health workers in school health suites other than nurses. §Most commonly only at the first visit. ††Because condoms are available only through vending machines. ‡‡For example, assemblies, special HIV-related events and peer education programs.	

Most schools that make condoms available do so through more than one source. In only 7% of schools are teachers, principals or counselors the sole source of condoms, and in just 13% do only school nurses provide them; finally, in fewer than 1% of schools are condoms available only through vending machines. In 23% of schools, condoms are available from both educational personnel (principals, teachers and counselors) and health personnel (nurses and other health workers).

Although a goal of many advocates of school condom distribution programs is to make condoms available to all sexually active students, there are two common requirements for receiving condoms: parental consent and counseling. The first requirement is designed to reduce concerns about infringement of parental rights; the second is intended to defuse both potential objections that condom availability programs might be seen as sanctioning sexual activity and potential school liability should students use condoms incorrectly and subsequently become pregnant or contract an STD.

Thus, only a few schools make condoms available without restriction. In 81% of schools (but only 55% of school districts), some type of parental consent is required before a student can obtain a condom (Table 2). Ten percent of schools require active

consent, in which students must obtain written parental consent before receiving condoms. However, 95% of these schools have school health centers, and in most of these a blanket consent is required before the student may receive health services from the clinic.

Since these schools do not single out condoms for active consent, such a policy is not as onerous or awkward for students as might be expected. On the other hand, nationwide studies of school-based clinics indicate that just 71% of parents whose children attend schools with clinics actually sign the consent forms permitting their teenagers to obtain health care in those clinics.[13] Thus, up to 29% of students in such schools may not be able to obtain condoms through school-based clinics.

Passive consent is required in 71% of schools with condom availability programs, but in only 39% of school districts. (This difference arises from the fact that Los Angeles and New York, the two largest school districts in our sample, both require passive consent.) Schools requiring passive consent typically send notices home to parents indicating that they must sign the form or contact someone at the school only if they wish to withhold consent. In both cases, the school must keep records of these denials of consent.

According to data from New York, only 2% of parents exclude their teenagers from the program.[14] Estimates from respondents to our survey suggest a mean of only 3% of students are prevented from obtaining condoms in schools with passive consent. Thus, passive consent does not directly prevent large percentages of students from obtaining condoms. On the other hand, passive consent may indirectly prevent students from obtaining condoms, because the process of checking parent refusals can be cumbersome.

The second common requirement for condom receipt is counseling, which is mandatory in 49% of schools. (Optional counseling is available in nearly all of the schools.) During counseling, students are commonly informed that abstinence is the safest method of protection against STDs; they are also instructed about the proper methods of storing and using condoms. In some schools, nurses are not allowed to demonstrate how to use a condom, while in other schools they are required to do so. A few schools require the students and nurses to sign a form verifying that the counseling was provided.

Many schools have other restrictions that may reduce students' access to condoms (Table 2). About two-fifths of the schools make condoms available only during selected times. In 28% of schools, condoms are available only during lunch hour, in 7% they are available 1-3 days each week and in 6% they are available during only part of one day per week. The impact of these restrictions may depend, in part, upon the extent to which students remember to obtain condoms during the limited hours in which they are available.

A large proportion of schools (74%) restrict the number of condoms that students can obtain at any one time. Among these schools, the number that can be taken ranges from one to 20, with a mean of 4.6. In 38% of schools, students are restricted to 1-3 condoms. (The impact of this restriction may be reduced by the fact that students in most schools can return to get condoms as often as they want.)

All schools make condoms available free of charge, except when they are provided in vending machines. In those machines, the cost is typically 25 cents. However, since fewer than 1% of the schools have only condom vending machines, cost is not a common barrier.

Table 2 also indicates that a total of 98% of schools with condom programs make counseling available; most of the remaining 2% provide condoms by means of vending machines or bowls. Nearly all of these schools provide specialized training for the staff members who conduct the counseling. Training commonly covers district policies regarding condom availability, the legal consequences of violating that policy, background instruction in HIV and AIDS, an emphasis on abstinence as the safest form of protection against HIV and activities to assess risk and manage referrals.

A majority of the schools making condoms available offer sexuality or AIDS education. According to respondents, 50% of these schools offer comprehensive kindergarten through 12th grade (K-12) sex education, 51% offer K-12 HIV education and 55% offer either or both. (These results should be viewed cautiously, since what constitutes comprehensive K-12 sex education and HIV education was not well-defined.)

About 24% of the schools making condoms available to students had school health centers. Such clinics provide a wide range of health services, including annual health assessments, treatment for acute illness and injury, monitoring of chronic illness, sports physicals, immunizations, screenings, dental services, reproductive health care, mental health and substance abuse counseling, nutritional services and case management.

Finally, more than three-fourths of the schools had other kinds of supportive programs. These included a wide range of activities designed to increase students' awareness of the risk of AIDS and the importance of avoiding intercourse or using condoms—e.g., abstinence groups, orientations to the schools' AIDS prevention programs, peer-education programs, special assemblies, media and theatrical productions, health information tables (often at lunch hours when peer counselors make condoms available), rap sessions, health fairs, National AIDS Awareness Day programs, National Condom Week activities, presentations by people with HIV, field trips to museums with exhibits on HIV and AIDS, fundraising events for AIDS foundations, posters, contests and viewings of The NAMES Project Quilt.

NUMBER OF CONDOMS OBTAINED

Mean Numbers

The number of condoms obtained per student per academic year is a potentially useful indication of the extent to which students use a condom availability program. On the other hand, such a measure does not take into account the number of sexually active students in the school or their frequency of sexual intercourse, nor does it measure the impact of condom availability on the frequency of intercourse or on condom use. Unfortunately, most schools in our study did not have adequate data on the sexual and contraceptive behavior of their students.

Respondents reported a mean of 4.0 condoms obtained per student during the

academic year. However, the median number of condoms obtained per academic year was only 1.1 per student, reflecting the fact that students in a small number of schools obtained very large numbers of condoms.

Both the mean and the median obscure large variations across schools. In fewer than one-third of schools, students obtained an average of less than one-half condom per student per year (i.e., one condom for every two students), and in even fewer schools did teenagers obtain between one-half condom and one condom per student per year (Table 3). About two-fifths of schools provided 1-6 condoms per student, while small proportions provided 6-12 or more than 12.

Table 3. Percentage distribution of schools by mean number of condoms obtained per enrolled student per year		
Mean	%	N
¾0.5	29	94
0.5-1.0	16	52
1.0-6.0	41	135
6.0-12.0	8	27
>12.0	6	19
Total	100	327

BIVARIATE ANALYSES

Because there was such large variation across schools in the number of condoms taken, we sought to determine what characteristics of the schools, of supportive programs and of condom programs themselves most affected how many condoms were distributed.

Seven characteristics appeared highly related to the number of condoms provided per student per year (Table 4). Alternative schools provided 7.1 condoms per student per year, whereas academic schools provided only 1.8. Similarly, schools with fewer than 300 students provided 7.7 condoms per student per year, compared with only 1.0 in schools with more than 2,000 students.

Table 4. Mean number of condoms obtained per student per academic year, by school and program characteristics		
Characteristic	Mean	N
SCHOOL CHARACTERISTICS		
Type of high school***		
Academic	1.8	233
Alternative	7.1	89
No. of students in school***		
0-299	7.7	68
300-999	3.2	70
1,000-1,999	2.3	83
>=2,000	1.0	103
Level of high school		
Senior	3.3	291
Junior	1.7	26
PROGRAM CHARACTERISTICS		
Type of consent required		

None	3.0	77
Passive	3.4	230
Active	1.8	17
Counseling required		
Yes	3.7	142
No	2.9	163
No. of staff providing condoms per 1,000 students*		
0-24	1.6	95
25-49	2.6	89
50-99	1.9	47
100-499	4.8	60
>=500	19.8	12
Maximum no. of condoms that can be taken at one time*		
1-2	1.7	78
3-4	1.5	48
5-9	2.5	72
10-20	12.3	28
No limit	3.4	75
Condoms in vending machines		
Yes	1.1	12
No	3.3	312
Condoms in bowls/baskets**		
Yes	8.0	18
No	2.9	306
Has K-12 sex education/HIV education program**		
Yes	4.1	203
No	1.7	121
Has school clinic		
Yes	3.4	72
No	3.2	252
Has other supportive activities*		
Yes	2.6	240
No	5.8	64
**Difference is statistically significant at p<.01. ***Difference is statistically significant at p<.001. *Note:* Significance was determined by one-way analysis of variance.		

Schools in which the ratio of staff providing condoms to students exceeds 500 per 1,000 (i.e., one staff person for every two students) provided 19.8 condoms,‡ while schools with a ratio below 25 per 1,000 provided only 1.6. Schools with no set limit on the number of condoms that could be taken at one time provided 3.4 condoms per student per year, on average, while those with a limit of 1-2 condoms provided half as many. Schools where condoms were available in baskets provided 8.0 per student per year, while those without baskets provided 2.9. Finally, schools with comprehensive K-12 sex education or HIV education programs provided more condoms per student per year than those without such programs.

Surprisingly, schools with supportive activities (such as National AIDS Awareness Day or National Condom Week) provided fewer condoms than schools without such programs. However, when four schools that were extreme outliers were removed from

the analysis, there was no longer a significant relationship.

Several other estimates changed sizably after we removed from the analysis nine small alternative schools (all from one California community) that reported providing very large numbers of condoms to their students. The only statistically important change, however, concerned the presence of a school clinic: When the nine outliers were dropped, the mean number of condoms distributed in programs with no school clinic fell from 3.2 to 2.1, and the difference between this mean and that for schools with a clinic (3.4) became statistically significant ($p=.013$). Although exclusion of these outliers also reduced means for passive consent (to 2.3), for required counseling (to 1.9), for a maximum of 10-20 condoms (to 3.6) and for having other supportive programs (to 1.8), none of these changes revealed further statistically significant associations.

MULTIVARIATE ANALYSES

Some school and program characteristics clearly are interrelated. For example, alternative schools are often small and have many staff members providing condoms. Thus, we conducted regression analyses to estimate the effect of each school and program characteristic on the mean number of condoms distributed per student, independent of all other characteristics in the statistical model. Because we examined numerous models, rather than testing specific hypotheses, all of our findings should be considered exploratory.

The initial results, which included many school and program characteristics, were unstable and sometimes counterintuitive. More intensive analyses of the data revealed four methodological problems. First, some of the school and program characteristics were highly skewed; thus, unless a measure was particularly important and represented a construct that could not be tapped with another variable, skewed variables were dropped.

Second, a few variables were highly intercorrelated. To reduce this problem, we identified the intercorrelated groups of variables and retained only those that measured the important construct most directly and reliably.

Third, many of the schools in our sample were in either Los Angeles or New York and shared common characteristics, both measured and unmeasured; to reduce the impact of district-wide commonalities, we included dummy variables for these two school districts in all statistical models.

Finally, the dependent variable (mean number of condoms distributed per student per year) was itself highly skewed. Thus, we removed from the model the nine small alternative schools that had extremely high scores on the mean number of condoms distributed and that were excessively affecting the regression coefficients.

When all of these changes were made, the model became much more stable. The results of the final model indicate that school characteristics alone explained 19% of the variance in the distribution of condoms across schools. Table 5 shows that both in alternative schools and in small schools the provision of condoms was independently increased. In addition, the number of condoms obtained was greater in high schools than in middle schools. These results are consistent with many of the data seen in

Table 4.

Table 5. Multivariate analysis showing impact on mean number of condoms obtained per student per academic year, by school and progam characteristics (N=288)				
Characteristic	b	95% CI	Beta	p
School†				
Academic school	-1.6	-2.7, -0.3	-.19	.013
No. of students (in 000s)	-0.7	-1.1, -0.2	-.21	.004
High school	1.5	0.1, 2.9	.11	.033
% black	.0063	-0.1, 0.3	.05	.51
% Latino	-.0011	-.03, .02	-.008	.92
% other racial minorities	.035	.001, .067	.13	.041
Program				
Requires active consent	-.81	-2.5, 0.9	-.05	.36
Requires passive consent	-.29	-1.7, 1.2	-.04	.69
Requires counseling	-.20	-1.3, 0.9	-.03	.72
No. of staff/1,000 students	0.5	-1.7, 2.9	.03	.64
Maximum no. of condoms at one time‡	.09	-.03, .21	.08	.13
Has condom vending machines	-3.1	-5.1, -1.1	-.17	.002
Has condom bowls/baskets	4.8	3.2, 6.4	.32	.000
Has K-12 sex education/HIV education program	.87	-0.6, 2.3	.11	.26
Has school clinic	1.5	0.4, 2.5	.17	.005
Has other supportive programs	0.8	-0.2, 1.8	.09	.10
†Dummy variables representing whether the school was located in New York or Los Angeles were included in the regression equations, but their results cannot be presented here because of confidentiality agreements with all school districts. ‡Because very few students would ever take more than 10 condoms at one time, when a school had a limit greater than 10 or when a school had no limit at all, that school was coded as 10. *Note:* The b represents the unstandardized regression coefficient; beta is the standardized regression coefficient. CI=confidence intervals.				

The proportions of students in each school who were white, black or Hispanic were not significantly related to the number of condoms obtained. However, the percentage of students in each school who were members of ethnic minorities other than black or Hispanic was statistically significant.

When program characteristics were added to the model, its explanatory power was doubled, to 39% (not shown). This highly significant increase strongly indicates that program characteristics have an important impact on the number of condoms distributed. (However, other, unmeasured school characteristics might have reduced the explanatory power of the program characteristics if they had been measured and included in the regression.)

Three program characteristics were highly related to the number of condoms obtained by students. The schools that made condoms available in baskets or bowls provided significantly more condoms than did other schools. Of all school and program characteristics measured in our study, making condoms available in baskets or bowls was the single most important: After adjusting for other school and program characteristics, we found that schools with condoms in baskets provided 4.8 more condoms per student than did other schools.

Having a school clinic was the second most important program characteristic that increased condom use; after adjusting for other factors, we found the presence of a

clinic to be associated with an increase of 1.5 condoms per student.

In contrast, making condoms available in vending machines reduced the number of condoms obtained by 3.1 per student, after adjustment for the effects of other measured characteristics. Only 12 schools had condoms in vending machines; thus, these results should be interpreted with caution. Three of these 12 made condoms available only in vending machines; in these, a mean of 1.0 condoms were obtained per student. The remaining nine schools also offered condoms through other mechanisms; in those, fewer than one in four condoms obtained by students were purchased through vending machines.

Although requiring parental consent and placing restrictions on condoms appeared to reduce the number of condoms distributed and having more staff provide condoms and having supportive activities seemed to increase distribution, none of the regression coefficients for these program characteristics were statistically significant. Notably, when we restricted the analysis to schools that provided 10 or fewer condoms per student per year (i.e., when we excluded several small alternative schools that provided many condoms), we found that the requirement of active parental consent significantly reduced the number of condoms obtained by students (not shown).

DISCUSSION AND CONCLUSIONS

Our estimate that only 0.3% of school districts have condom programs is much smaller than that of a previous national survey of school districts.[15] We may have failed to find some school condom programs, although we do not believe this to be likely, given our exhaustive search and the multiple methods with which we sought out programs. It may also be that the previous national survey overestimated the proportion of school districts with condom programs. Although that study randomly selected a reasonably large sample of school districts (299), high-population districts were oversampled. To the extent that school districts in large cities are more likely than those in smaller towns or cities to have school condom programs, the previous study may have overestimated the number of districts with condom programs.

Of the 431 schools that we determined to have condom availability programs, nearly all offered condoms as part of a more comprehensive program, with program components such as counseling, sex education or HIV education, or other educational activities. The breadth of these programs clearly demonstrates that when schools make condoms available to students, the provision of condoms is typically only part of a larger effort to reduce unprotected intercourse. The considerable and often heated debate about the provision of condoms may sometimes obscure these programs' comprehensiveness.

Most school programs had some barriers or restrictions to condom access. Many limited condom distribution by requiring passive or active parental consent, by requiring counseling, by making condoms available only during selected times or by limiting the number that can be taken at one time. Only 5% of the schools made condoms available through baskets or bowls, the most barrier-free and nonrestrictive approach to condom provision.

Our findings suggest dramatic variability in the success of condom availability programs (at least as measured by the mean number of condoms obtained by

students). In the 45% of the schools where students obtained an average of less than one condom per student per year, condom availability programs do not appear to have been particularly effective; however, in the 14% of schools where students obtained six or more condoms per student per year, these programs do appear to have been effective.

Students' receipt of condoms was highly related to school and program characteristics. In particular, programs were more effective if they were in small schools, were in alternative schools, were in high schools, made condoms available in baskets or bowls or made them available through school health centers.

Providing condoms in baskets or bowls allows student to obtain as many condoms as they want, confidentially (or anonymously), and without obtaining permission or required counseling, thus minimizing barriers to access. According to interviews with school staff members, the most common weakness of programs that lack baskets is that students have to ask an adult for a condom.

Our quantitative data cannot explain why schools with health centers provided many more condoms than other schools. Program personnel indicate, though, that students use the clinics for a variety of health reasons, that clinic staff sometimes ask students if they are having sex and, if so, whether they are using protection. If students indicate that they are going to continue having sex, staff members encourage them to use contraceptives and make condoms available. Health clinics are also a logical place to make condoms available, and some of the clinics had condom baskets.

There are several reasons why vending machines were poorly utilized. Respondents suggested that some may be poorly placed; in addition, their condoms typically cost 25 cents. Furthermore, some vending-machine condoms are packaged in a box wrapped in cellophane that can be very difficult to open. All of these factors may serve to discourage young people from using the vending machines.

Other program characteristics that proponents of condom availability efforts have hypothesized would restrict students' access to condoms (e.g., requiring active parental consent, requiring counseling or limiting the number of condoms that could be taken) were not highly or significantly related to the number of condoms obtained. The associations were, however, in the expected direction. It is possible that if our study had been designed to measure more precisely the quality of supportive and educational programs, those results might have been stronger.

Because of the dramatic variation in the number of condoms obtained by students, condom availability programs should be studied further, to improve our understanding of the importance of different program characteristics. In addition, given the paucity of research measuring the impact of programs on behavior, it is important to better understand the effects of particular programs on sexual activity and contraceptive use. More rigorous examination of the combined impact of condom provision and of other supportive educational interventions in the schools is especially important.

The consequences of sexual risk-taking are potentially great among high-risk youths, and some of the programs described here are clearly effective at providing condoms to high-risk young people attending alternative schools. Thus, in regard to program

implementation, there should be a greater commitment to replicating these effective programs in other alternative schools for high-risk youths. In addition, many schools with condom availability programs but without condom baskets should seriously consider offering condoms in bowls or baskets. Finally, because school condom programs represent a low-cost means of reducing barriers to condom use, additional school districts should consider adopting condom programs with the characteristics found to be important in this study (e.g., with condom baskets). The experience of Massachusetts suggests that states can facilitate this process by recommending that school districts make condoms available.

References

1. Alan Guttmacher Institute, *Sex and America's Teenagers,* New York, 1994.

2. J.E.G. Epner, ed., *Policy Compendium on Reproductive Health Issues Affecting Adolescents,* American Medical Association, Chicago, 1996.

3. R.J. DiClemente and J.L. Peterson, *Preventing AIDS: Theories and Methods of Behavioral Interventions,* Plenum, New York, 1994.

4. R. Leitman, E. Kramer and H. Taylor, "A Survey of Condom Programs," in S.E. Samuels and M.D. Smith, *Condoms in the Schools,* Henry J. Kaiser Family Foundation, Menlo Park, Calif., 1993.

5. D. Kirby, "Research and Evaluation," in S.E. Samuels and M.D. Smith, 1993, op. cit. (see reference 4).

6. P. Bonaker, "School-Based Condom Availability Programs: Teacher and School Operated," paper presented at the Kaiser Family Foundation Forum on Condom Availability Programs in the Schools, Menlo Park, Calif., June 18-19, 1992.

7. P. Clark, "School-Based Condom Availability Programs: Commercial Marketing," paper presented at the Kaiser Family Foundation Forum on Condom Availability Programs in the Schools, Menlo Park, Calif., June 18-19, 1992.

8. D. Kirby, C. Waszak and J. Ziegler, "Six School-Based Clinics: Their Reproductive Health Services and Impact on Sexual Behavior," *Family Planning Perspectives,* **23:**6-16, 1991.

9. S. Rosenfield, Santa Monica High School, personal communication, Feb. 18, 1993.

10. B. Rosenthal, public school program administrator, Baltimore, personal communication, Feb. 18, 1993.

11. D. Kirby, C. Waszak and J. Ziegler, 1991, op.cit. (see reference 8).

12. M.L. Vincent, A.F. Clearie and M.D. Schluchter, "Reducing Adolescent Pregnancy Through School- and Community-Based Education," *Journal of the American Medical Association,* **257:**3382-3386, 1987; and H.P. Koo et al., "Reducing Adolescent Pregnancy Through a School- and Community-Based Intervention: Denmark, South Carolina, Revisited," *Family Planning Perspectives,* **26:**206-211 & 217, 1994.

13. J.G. Lear et al., "Reorganizing Care for Adolescents: The Experience of the School-Based Adolescent Health Care Program," *Journal of Adolescent Health Care,* **12:**450-458, 1991.

14. B. Davis, American Medical Association, Chicago, personal communication, June 6, 1995.

15. R. Leitman, E. Kramer and H. Taylor, 1993, op. cit. (see reference 4).

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*Los Angeles and New York City account for 247 of the 341 school programs implemented in 1991-1992.

†Alternative schools included schools for specified groups of students—e.g., those unable to attend mainstream high schools for reasons of excessive absences, fighting, pregnancy or parenting, and incarceration—and schools offering independent study or smaller classes.

‡Schools with such high staff-student ratios were small alternative schools with relatively few students and a small number of full-time staff members and other professionals who were part-time employees at the school.