

Video-Based Sexually Transmitted Disease Patient Education: Its Impact on Condom Acquisition

ABSTRACT

Objectives. This study assessed the impact of video-based educational interventions on condom acquisition among men and women seeking services at a large sexually transmitted disease clinic in the South Bronx, New York.

Methods. During 1992, 3348 African American and Hispanic patients were enrolled in a clinical trial of video-based interventions designed to promote safer sex behaviors, including increased condom use. Patients were assigned to one of three groups: control, video, or video plus interactive group discussion. Subjects were given a coupon to redeem for free condoms at a pharmacy several blocks from the clinic. Rates of condom acquisition were assessed by level of intervention.

Results. In comparison with a control group, subjects who viewed videos were significantly more likely to redeem coupons for condoms (21.2% redemption rate vs 27.6%). However, participation in interactive sessions after video viewing augmented the positive effects of video viewing alone (27.6% redemption rate vs 36.9%). Gender and ethnicity were significantly associated with outcomes.

Conclusions. The condom acquisition rate almost doubled with the use of culturally appropriate, video-based interventions. Designed to present minimal disruption to clinical services, these interventions can be implemented in clinics servicing at-risk men and women. (*Am J Public Health*. 1995;85:817-822)

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Introduction

A host of social, behavioral, and environmental factors contribute to an increased risk of sexually transmitted diseases, including human immunodeficiency virus (HIV) infection, among men and women who reside in America's inner cities. With less access to private medical care than their more economically privileged counterparts, inner-city residents who are exposed to sexually transmitted diseases often seek treatment at public sexually transmitted disease clinics. In comparison with the general population, sexually transmitted disease clinic clients are predominantly young, low-income men and women who report a number of interrelated risk factors, including multiple sex partners, high levels of unprotected sex, and previous sexually transmitted disease infections.^{1,2} Reflecting the ethnic composition of their communities, the majority are African American and Hispanic, the population groups at highest risk for diseases such as gonorrhea and syphilis, as well as new cases of HIV infection.^{3,4} Because of their access to large numbers of high-risk men and women, public sexually transmitted disease clinics are ideal sites for educational interventions designed to promote condom use and safer sex practices.

Although guidelines from the Centers for Disease Control (CDC) mandate that federally supported clinics provide patient education, prevention traditionally has taken a back seat to treatment as a priority.^{5,6} Research shows that, during their clinic visit, men and women may receive little information about how to protect themselves and their partners and that they often leave the clinic with unanswered questions about the preven-

tion of sexually transmitted diseases and HIV.⁷

There are a number of barriers to placing a greater emphasis on prevention in the clinic setting. Like other public health facilities, sexually transmitted disease clinics often are constrained by limited resources. Sufficient personnel are not always available for providing even the traditional one-on-one education and counseling that has been the mainstay of clinic practice over the past several decades.⁸ Even when such time is available, clinic staff may be inadequately trained in prevention and unprepared to provide information and skills to culturally diverse patient populations. Because sexually transmitted disease clinics in the past have served many more men than women, clinic programs may overlook gender-based differences in educational needs.⁹ Similarly, clinic staff often are unprepared to address cultural or linguistic barriers to condom use and safer sex practices.³ Even though CDC guidelines stress the importance of individualizing prevention messages to the needs of the client,¹⁰ educational efforts typically proceed in a standard way, providing information but not addressing the cultural, social, or environmental issues the client may face when trying to put knowledge into practice.¹¹

Compounding these barriers is a relative lack of information about effective strategies to promote behavior change, as well as a lack of confidence among clinic staff in the effectiveness of educa-

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tional interventions.^{8,12} To address the need for proven interventions, we developed and tested video-based approaches to sexually transmitted disease patient education. Our work builds on research by Solomon and DeJong that showed the effectiveness of a culturally appropriate video in improving knowledge, attitudes, treatment adherence, and condom acquisition among African American men.¹³⁻¹⁵ Featuring characters of the same ethnicity as the target audience, drama-based videos provide a vehicle for both transmitting information and modeling desired attitudes and behaviors. Through the use of videos, interventions can be designed that are (1) based on social learning theories of behavior change; (2) culturally, linguistically, and gender appropriate for diverse patient populations; and (3) relatively simple to incorporate into clinic prevention programs.

In the following report, we extend what is known about the effectiveness of video-based sexually transmitted disease/HIV education. First, we show how videos can be used to address the educational needs of a diverse clinic population, including Hispanics as well as African Americans and women as well as men. Second, while video viewing alone has been shown to have an impact on patient behavior, we examine whether this effect is enhanced when videos are used as triggers to interactive group skill-building sessions that allow participants to develop gender-appropriate and culturally appropriate strategies for adopting safer sex behaviors once they leave the clinic.

Methods

During the 12-month period from December 1991 to December 1992, 3348 African American and Hispanic men and women attending a sexually transmitted disease clinic in the South Bronx were enrolled in a randomized clinical trial of video-based educational interventions designed to promote safer sex behaviors, including increased condom use.

Pilot Research and Development of Interventions

Over a 6-month period prior to this study, we conducted focus groups and personal interviews with approximately 200 Black and Hispanic men and women attending the Morrisania sexually transmitted disease clinic in the South Bronx, as well as residents of the clinic catchment area. Following a model drawing on the theory of reasoned action,^{16,17} findings

elucidated culturally defined gender roles and responsibilities regarding the introduction of condom use into primary and nonprimary relationships, as well as other norms, attitudes, and behaviors reducing the effectiveness of current sexually transmitted disease prevention efforts. In addition, we interviewed clinic staff and conducted an observational study of clinic practices. Findings were used to ensure that interventions could be integrated into existing services, with minimal disruption and few additional resources. The way in which the empirical evidence obtained through this research was translated into targeted video-based interventions has been described elsewhere.¹⁸

Subject Enrollment and Treatment Assignment

Patients over the age of 17 years were approached in consecutive order of registration number (assigned in order of arrival) to fill predetermined gender- and ethnic-specific quotas during each day of clinic operation throughout 1992. These quotas were designed on the basis of pilot research that established the approximate ethnic and gender distribution of the clinic population (60% African American/40% Hispanic, 60% male/40% female) and estimates of the number of patients, by intervention level, who could be seen in a given day by the research team, based on time required to complete informed consent, data collection, and interventions. The pilot research also indicated that there were no detectable gender or ethnicity differences in the distribution of patients by days of clinic operation.

Subjects were assigned to one of the three treatment conditions described below. The logistics of clinic operation and the administration of research interventions made it difficult to offer all treatment conditions every day. Therefore, rather than subjects being assigned at random to a treatment condition following enrollment, treatment conditions were assigned at random to days of clinic operation. On any given day, subjects could be enrolled either as controls or into one of the two intervention conditions. Subjects could be enrolled in the study only once. All subjects provided informed consent. Study procedures were approved by the Institutional Review Board of the New York City Department of Health. The clinical research staff, consisting of two men and one woman with experience in social service delivery, was fluent in English; one of the male staff

members and the female staff member also were fluent in Spanish.

Subjects were assigned to one of three conditions: video only, video plus interactive session, or control. Subjects in the video-only intervention were assigned to view one of two 20-minute videos: *Let's Do Something Different*, intended primarily for an African American audience, or *Porque Sí*, intended primarily for a Hispanic audience. Both videos modeled culturally appropriate strategies for overcoming barriers to consistent condom use. To maximize the number of patients who could receive such an intervention, small groups (three to eight members each) of subjects viewed the videos in a room set aside for educational purposes. Subjects assigned to the video plus interactive session viewed the culturally appropriate video in a small group setting and then participated in a brief (20-minute) group skill-building session led by a trained facilitator in either Spanish or English. Facilitators matched to group by gender worked with patients, following a semi-structured protocol, to identify their specific individual barriers to condom use. Once identified, the barriers were addressed by providing information and correcting misinformation, determining risk factors, discussing condom options, and practicing condom negotiation skill-building techniques (such as framing arguments for consistent condom use with partners and practicing condom negotiation through role playing). Although a consistent format for the group session was followed, content was tailored to the specific needs of the individuals participating in the group. Subjects in a third group served as controls. Irrespective of treatment group, all subjects received the sexually transmitted disease prevention information regularly provided by clinic staff as part of the routine patient visit.

During calendar year 1992, 3470 of the 7962 clinic patients (43.6%) were asked to participate in the study. Of those approached, 18 refused participation and 104 were called to clinic appointments or otherwise lost to clinic flow before they could complete participation. The final sample of 3348 subjects represented 96.5% of all those approached for participation. Fifty-four percent of subjects were diagnosed with an incident sexually transmitted disease during the study visit; the balance were seen for symptomatic genitourinary complaints, follow-up treatment of a sexually transmitted disease, counseling, or screening.

TABLE 1—Sample Characteristics for 3257 Clients of a Sexually Transmitted Disease Clinic

	Black (n=2013)	Hispanic (n=1244)
Gender, %		
Male	37.2	22.8
Female	24.6	15.4
Ethnic background, %		
African American	81.1	...
Caribbean	17.7	...
Other	1.2	...
Puerto Rican	...	70.9
Dominican	...	18.7
Other	...	10.4
Language at home, %		
English only	99.3	26.8
Spanish only	...	36.8
Spanish/English	...	36.4
Graduated from high school, %	62.8	46.0
Age, y, mean (SD)		
Men	29.1 (9.5)	31.5 (9.9)
Women	28.4 (9.7)	30.2 (10.8)

Note. Subject risk characteristics were as follows: history of prior sexually transmitted disease, 60%; use condoms rarely or never, 61%; and two or more partners per month, 37% (men) and 14% (women).

Data Collection

Data were collected from two sources. First, prior to their visit with a clinic provider, all subjects were verbally administered a patient profile questionnaire in their choice of Spanish or English. This form was used to obtain sociodemographic characteristics as well as individual profiles of sex practices, risk behaviors, and sexually transmitted disease histories. Second, we built on a "coupon redemption" evaluation strategy first used by Solomon and DeJong as a proxy measure of condom use.¹³ It is standard procedure for all patients visiting a public sexually transmitted disease clinic to be offered a small selection of condoms at the end of their visit. Following regular clinic services and participation in the assigned treatment group, a research interviewer gave each subject a coupon that could be redeemed for an additional three condoms at a private pharmacy located several blocks from the clinic.

TABLE 2—Subjects' Condom Acquisition by Treatment Assignment: Odds Ratios (95% Confidence Intervals) for Total Sample and within Gender and Ethnicity

	Video Viewing vs Control Subjects	Video plus Group vs Control Subjects	Video plus Group vs Video Subjects
Black			
Men	1.15 (1.07, 1.23)	1.22 (1.14, 1.31)	1.07 (0.00, 1.15)
Women	1.13 (1.05, 1.23)	1.26 (1.16, 1.38)	1.13 (1.04, 1.25)
Hispanic			
Men	1.15 (1.06, 1.26)	1.28 (1.17, 1.40)	1.13 (1.03, 1.24)
Women	1.19 (1.07, 1.32)	1.32 (1.18, 1.47)	1.12 (0.00, 1.26)
Total	1.15 (1.11, 1.20)	1.26 (1.21, 1.32)	1.11 (1.06, 1.16)

We tested two main hypotheses. First, condom acquisition would be greater among subjects exposed to the video intervention than among subjects in the control group. Second, condom acquisition would be greater among subjects exposed to the video plus interactive session intervention than among subjects exposed only to the video intervention. We also tested whether the effects of interventions were consistent by gender and ethnicity and whether condom acquisition was associated with risk status.

Analysis

Descriptive indices were derived by gender and ethnicity. Using logistic regression, we assessed the impact of intervention level (e.g., video vs video plus interactive session) on condom acquisition, both for the sample as a whole and by gender and ethnicity. We also examined the relationship between separate risk factors and condom acquisition, again using logistic regression. Finally, using chi-square analysis, we assessed the impact of interventions on condom acquisition within ethnic groups (Puerto Rican vs Dominican and African American vs Caribbean) using the proportion of subjects who redeemed coupons as the dependent variable. All analyses were performed on the PC version of SPSS.¹⁹

Sample

Complete data were obtained for 3257 subjects (97.3% of those enrolled). Demographic characteristics of the sample are presented in Table 1. Among subjects describing themselves as Black, most also identified themselves as African American, although a significant proportion (17.7%) reported that they were Caribbean. Among Hispanics, 70.9% identified themselves as Puerto Rican, while 18.7% said that they were Dominican. Virtually

all subjects who identified themselves as African American were born in the United States, in comparison with only 19.7% of Caribbeans. Among Hispanics, 56.9% of Puerto Ricans and 13.2% of Dominicans were born in the United States. All African Americans and 55.8% of Caribbeans had resided in the United States for more than 10 years. Among Hispanics, 90.2% of Puerto Ricans and 39.7% of Dominicans had more than 10 years of residency in the United States.

The breakdown of subjects in each treatment group by ethnicity and gender verified that our sample very closely approximated the intended distribution (data not shown).

Results

In comparison with subjects in the control group, a significantly greater proportion of subjects assigned to view videos redeemed the coupons they received at the clinic for condoms at a neighborhood pharmacy (27.6% vs 21.2%; $P < .0001$). The proportion of subjects redeeming coupons for condoms also was significantly higher among those exposed to the video plus interactive group sessions than among those exposed to the video alone (36.9% vs 27.6%; $P < .0001$). Subjects in the video plus interactive session group showed a 74% increase relative to controls in the proportion redeeming coupons for condoms. Considering all subjects together, the proportionate differences in condom acquisition were significant by treatment group (Table 2).

Rates of condom acquisition tended to increase consistently by level of intervention across ethnic- and gender-specific groups, although African American women were least likely to redeem coupons after exposure to the video alone (Table 2). Hispanic men (44.6%) and women (37.1%) exposed to both video

Discussion

These results demonstrate the effectiveness of video-based interventions in influencing condom acquisition among men and women at high risk of acquiring and transmitting sexually transmitted diseases. Interventions were based on a model of reasoned action developed to account for the influence on behavior of cultural, gender, and peer group norms; situational dynamics; and the social environment. Rather than emphasizing information about risk behaviors in a standardized fashion to all patients, these video-based interventions provided sexually transmitted disease clinic clients with opportunities for observing and considering strategies they could use for protecting themselves and others from infections. In short, beyond learning a few facts about safer sex, they learned about and practiced specific skills they could apply to their own situations.²⁰

The efficacy of video viewing alone was substantially enhanced by using videos as triggers for interactive discussions led by trained facilitators. Participation in an interactive session after video viewing significantly increased the likelihood of condom acquisition, even when the simultaneous influence of gender and ethnicity was controlled. For some groups, the magnitude of effects, while statistically significant, were modest after exposure to a video only but substantially greater after exposure to both a video and an interactive session.

For example, the proportion of African Americans redeeming coupons did not substantially increase after exposure to the video alone. Hispanic women, on the other hand, showed a proportionately greater effect after video exposure. One reason for this disparity may have been the specificity of gender-appropriate messages integrated into the video interventions. *Let's Do Something Different*—the video used for African American men and women—primarily targeted behavior change among men, based on formative research suggesting the need for such an approach. In contrast, *Porque Sí* incorporated messages for both men and women and more specifically addressed gender-defined roles and attitudes regarding condom use in relationships. It appeared to have a similar impact on Hispanic men and women.

A similar pattern was observed when examining intraethnic differences. Those who identified themselves as Dominicans or Caribbeans were less likely to redeem

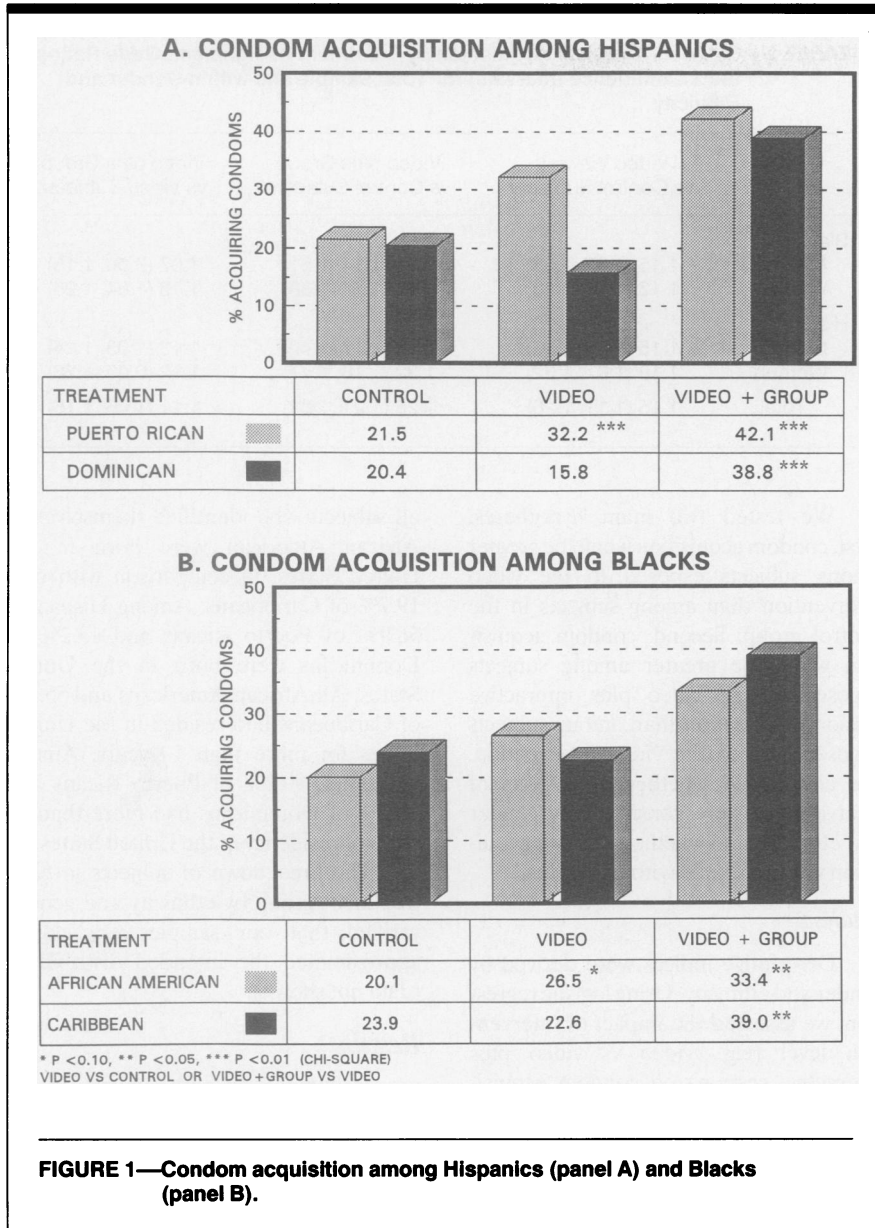


FIGURE 1—Condom acquisition among Hispanics (panel A) and Blacks (panel B).

and interactive sessions were most likely to redeem coupons. In comparisons with controls, they also demonstrated the largest proportionate difference in coupon redemption.

In addition to looking at differences between Hispanics and Blacks, we examined the associations between interventions and condom acquisition within ethnic subgroups. Among Hispanics, those identifying themselves as Puerto Rican experienced significant increases in coupon redemption for both the video only and the video plus interactive session interventions. In contrast, Dominicans were more likely to redeem coupons only after exposure to both the video and interactive group (Figure 1A). Similarly, among Black subjects, those identifying

themselves as African American tended to show increases in condom acquisition across both levels of intervention, while Caribbeans were more likely to redeem coupons only after exposure to the video plus group session (Figure 1B).

Subjects with a history of sexually transmitted diseases were less likely to acquire condoms than those without a prior sexually transmitted disease (odds ratio [OR] = 0.93, P < .0001). On the other hand, subjects reporting two or more sexual partners during the previous month were significantly more likely to redeem coupons for condoms than those with no or one sex partner over the same time period (OR = 1.24, P < .0001). Prior condom use was not significantly associated with condom acquisition.

coupons for condoms after exposure to video viewing alone than those who identified themselves as African Americans or Puerto Rican Hispanics. Yet when Dominicans and Caribbeans participated in interactive sessions after video viewing, their patterns of response were more similar to those of the other groups. It is interesting to note that, on average, Dominican and Caribbean subjects had been residents of the mainland United States for a shorter amount of time than other participants. It may be that when the videos are shown by themselves, without time for discussion, they are more appropriate for those who are more embedded in US culture. Interestingly, there was no consistent influence of separate risk factors on condom acquisition. Those who had a sexually transmitted disease prior to their current clinic visit were less likely to redeem coupons for condoms, while those who reported having multiple sex partners in the previous month were more likely to do so. The apparent lack of consistency between risk factors and behavior change may be attributable to the fact that interventions were designed not to target specific risk groups but to address a spectrum of sex practices and relationships.

The variations in response patterns by gender and ethnicity underscore the necessity of moving beyond standardized educational programs to interventions tailored to the individual client. While our study shows that videos are indeed effective in motivating patients to acquire condoms, it also points out one of the limitations of the medium. Even when they are designed to be sensitive to issues of gender and culture, videos are limited by the need to provide a somewhat more general message in order to reach as wide an audience as possible. While it is possible to use multiple videos in a clinic setting—we encountered little difficulty in coordinating the use of more than one video—the extent to which supplemental interactive sessions further personalize the prevention messages and enhance the effects of video alone is notable.

Beyond documenting the impact of video-based interventions on condom acquisition, this study addressed additional barriers to improving sexually transmitted disease patient education by showing that it is possible, with relatively modest resources and staff training, to incorporate video-based interventions into the operation of a large public sexually transmitted disease clinic. Following a rigorous research protocol and collecting fairly

extensive data from each subject, two full-time health interviewers and one half-time interviewer were able to offer video interventions to approximately 2000 men and women. Not burdened by research demands, clinic staff could offer educational interventions to an even larger number of patients. Rather than limiting themselves to one-on-one instruction or general education services in the clinic, public health advisors or health educators could be trained to implement and conduct group sessions such as the ones we tested here. The mechanism for this training exists: by incorporating such model groups into existing CDC-sponsored-and-approved sexually transmitted disease training programs, it would be relatively easy to create a cadre of personnel prepared to lead interventions in clinics across the country.

One obstacle to such an approach is that current training programs emphasize the importance of patient confidentiality and one-on-one education and counseling. The assumption is that patients will not want to participate in educational programs on sensitive topics such as sexually transmitted disease and sex practices, particularly in a group setting. We did not find this to be true. Virtually all of the men and women we approached were willing to participate in video-based interventions. Group viewing of videos was relatively simple to arrange; no patients objected to the setting. The vast majority of patients also were interested in discussing the video they saw with their peers. Indeed, patients seemed to enjoy the interventions, and many were eager for the opportunity to interact with others. Thus, the study challenged an assumption of existing patient education efforts and addressed some of the logistical barriers to effective, clinic-based sexually transmitted disease prevention programs.

A number of limitations of this study should be noted. Because of the study design, we were unable to examine the effects of interactive group sessions alone, without video viewing. In our experience, videos provide a relatively inexpensive way to transmit information quickly and efficiently to patients; they also provide a structure for initiating discussions about sensitive topics, particularly in small groups in which participants do not know one another. Without a video trigger, more burden is placed on the facilitator to develop and guide the conversation. Thus, while it would be interesting to test the impact of sessions alone, the easiest way to conduct such sessions may be to couple

them with prepared materials such as videos.

An additional limitation of the study was its reliance on condom acquisition as a proxy measure of condom use. Is it appropriate to extrapolate from a circum-spect measure of behavior, such as redeeming coupons for condoms, to the likelihood of consistent condom use? Obviously, sex practices represent a particular challenge as outcome measures in behavioral research. To increase the level of motivation necessary to comply with the measurable behavior of condom acquisition, we required that subjects redeem coupons at a pharmacy located several city blocks from the clinic. Aside from availability of condoms through study participation, all clinic patients could acquire free condoms within the clinic. Those who also redeemed coupons at the pharmacy were thus going out of their way to acquire more condoms than could be obtained at the clinic. While this behavior does not necessarily indicate a commitment to sexually transmitted disease/HIV risk reduction, we believe that it does suggest movement in such a direction. Given the prevalence of sexually transmitted diseases in the population served by the clinic, even a modest increase in the proportion of individuals practicing safer sex could have a significant impact on public health.

By using video-based interventions such as those tested here, it is possible to provide multiple culturally sensitive interventions in public sexually transmitted disease clinics.¹¹ The diversity of the clinic population to be served, coupled with the limited time staff have available for prevention education, makes video-based interventions an appealing strategy for tailoring educational programs to the needs of different patient groups. We have shown that this model program is effective and believe that it has the potential to reduce sexually transmitted disease reinfection and exposure to HIV. With support from CDC, similar programs have been implemented at public sexually transmitted disease clinics in Chicago and Boston. In keeping with results of the clinical trial conducted in New York City, these video-based interventions are being well received by both providers and patients at these new sites. We believe that similar approaches can be replicated in clinic settings nationwide. □

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