

Evaluation of a Peer Provider Reproductive Health Service Model for Adolescents

CONTEXT: *The use of peer providers in family planning clinics has been proposed as a strategy that could better serve sexually active adolescent populations.*

METHODS: *Baseline and follow-up survey data from 1,424 female and 166 male adolescent clients of five California community health clinics were analyzed to assess the effectiveness of a peer provider model between 1996 and 1999. Multivariable analyses examined differences in outcomes between clients' first and last clinic visits, and by whether clients received only clinical services or other components of the model (outreach and telephone follow-up) as well.*

RESULTS: *Female clients were significantly more likely at their last visit than at their first visit to report consistent birth control use (odds ratio, 1.9), use at last intercourse (1.8) and use of effective methods (3.5), and were significantly less likely to report consistent condom use (0.7). There were no significant differences in male birth control or condom use between first and last visits. Females who received all components of the model were more likely than those who received only clinical services to return for an annual exam (2.2) and to make three or more visits during the study period (1.7). The full model was particularly effective for females who were Hispanic, had been born to adolescent mothers or had had more than one sexual partner in the six months before their first clinic visit.*

CONCLUSIONS: *The peer provider model appears to be a promising addition to the mix of service delivery models, particularly for certain subgroups of clients. The findings underscore the importance of tailoring programs on the basis of clients' risk profiles.*

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National data have demonstrated declining pregnancy rates¹ and birthrates² among adolescents in recent years, due to increases in effective contraceptive use and reduced sexual activity.³ However, the adolescent birthrate in the United States continues to be the highest among developed countries.⁴ Each year, 9% of women aged 15–19 become pregnant, and 5% give birth.⁵ In addition, adolescents have high rates of chlamydia,⁶ and as many as half of all new HIV infections in the United States occur among people younger than 25.⁷ A number of factors contribute to this profile, including adolescents' unmet need for publicly subsidized contraceptive services⁸ and barriers that prevent them from accessing care.⁹

Clinical practice guidelines recommend that adolescents make annual preventive visits.¹⁰ To improve clinic utilization and decrease risky sexual behaviors among teenagers that can lead to unintended pregnancies and STDs, programs have been developed that rely on innovative and culturally appropriate strategies.¹¹ Efforts aim to make clinics more “teen-friendly” by removing financial and confidentiality concerns and structural obstacles (i.e., location, hours and waiting time), and by improving provider sensitivity and attitudes.¹² In addition, the adoption of peer health educators has been proposed as a strategy with potential to help improve client continuity and contraceptive outcomes.

The rationale for peer provider services is that people in general, and adolescents in particular, may be more likely to personalize health education messages if they receive them from a peer or someone who they perceive is facing similar concerns and pressures. Adolescent peer providers may be more effective communicators than adults because they better understand the life experiences, language and norms of teenage culture, and can increase the social acceptability of their health-related advice. Thus, although adult staff may be trained to work with adolescent clients and may even work in “teen-friendly” clinics, adolescents may still feel more comfortable discussing reproductive health issues with their peers. Some studies have found that peer and adult educators have comparable effectiveness: For example, a study of abstinence and safer-sex HIV risk reduction interventions found improved condom use resulting from both the peer- and the adult-led interventions.¹³ Others have found that peer educators can produce better results than adult health educators in some areas, such as in improving reproductive health knowledge and behavior.¹⁴

In this article, we examine the effectiveness of the Peer Providers of Reproductive Health Services to Teens model, which provides adolescents with outreach education and low- or no-cost services in a nonjudgmental, adolescent-centered and confidential environment. The model is based

on a program originally developed and implemented by the Valley Community Clinic in North Hollywood, California, from 1992 to 1995. In July 1996, The California Wellness Foundation provided funding to the California Family Health Council (CFHC) to implement the model in five clinics. These clinics represented the wide range of the state's racial, ethnic, social and economic populations, as well as its many geographic regions. Agencies were chosen because they had established a solid base of adolescent family planning clients and had extensive experience implementing adolescent programs. In addition, they demonstrated a strong commitment to fully implementing the model. The CFHC carefully monitored each agency's adherence to the protocol, scope of work and budget, and subcontracted with the University of California, San Francisco, to conduct an evaluation of the implementation and outcomes of the project between July 1, 1996, and June 30, 1999. In June 2001, The California Wellness Foundation approved a two-year, \$2 million grant to the CFHC to continue funding three clinics and to provide funding to five additional clinics throughout the state.

THE MODEL

The Peer Providers of Reproductive Health Services to Teens model has three key components. First, before clients receive clinical services from a medical provider, peer providers meet with them for an intake session. The peer provider discusses with the client his or her reason for the visit, explains what to expect during a physical exam and answers any questions the client may have about abstinence, birth control options and safer-sex practices. Every intake session includes a discussion about the importance of condom use to prevent STDs, including HIV; at most clinics, intake includes a condom use demonstration, as well.

Second, peer providers make follow-up telephone calls to each female client shortly after their first visit and then on a quarterly basis to reinforce health education information, answer questions, provide lab results, encourage both consistent contraceptive use and condom use, and make follow-up appointments as necessary. Because of limited resources and a concern that male clients might be more resistant to being called at home, peer providers do not call male clients on a regular basis, but only to provide abnormal test results or to follow up on specific problems. In addition, peer providers staff the toll-free Adolescent Teenline, which clients can call to receive reproductive health advice and information, schedule clinic appointments and get referrals to other services. Furthermore, male peer providers help male clients feel comfortable and assure them that they are not visiting a "women's clinic."

Third, two-person teams of young adult outreach health educators (consisting of one male and one female who are each 18 or older) provide group outreach to adolescents in mainstream and alternative schools, and individual outreach to male adolescents in a variety of community settings. They provide information about reproductive anatomy and physiology, birth control and condom use, and

services available at peer provider clinics. The teams developed a wide variety of strategies to promote the peer provider clinics, including the creation of logos used on stickers, flyers and posters; television and radio advertisements; and condom coupons redeemable at the clinics. The outreach health educators work closely with the peer providers to ensure continuity between the outreach and clinic services.

All 15–19-year-old males and females who want to be peer providers receive training and Basic Health Worker certification by the CFHC. Peer providers receive the same training as adult staff (i.e., approximately three months of instruction in clinic operations, reproductive health, counseling skills and clinic procedures), and thus have the same job descriptions and receive the same compensation as adult staff. In addition, they benefit from close, ongoing supervision by a caring adult, who provides career and personal counseling, including referrals for peer providers who might themselves need extra counseling support.

The importance of protecting clients' confidentiality is reinforced in every aspect of peer provider training. Intentionally breaching confidentiality is grounds for termination. In the clinic, peer providers are trained to avoid acknowledging a client they know unless that client approaches them first. If a client knows his or her assigned peer provider, the client is given the option of talking with a different staff member.

Successful clinics hire both male and female peer providers who represent the ethnic composition of the community and of the local schools. Many of the peer provider clinics have their own identified entrance, comfortable waiting room, reception area with posters and a TV showing popular movies and shows, and counseling rooms that are decorated in a "teen-friendly" fashion. Others share facilities with adult clinics, and designate at least eight hours per week specifically for adolescent peer provider services.

This three-year, clinic-based study investigates which components or combination of components of the peer provider model were effective in modifying adolescents' visit patterns and improving adolescents' birth control and condom use.

METHODS

Survey Instruments

Peer provider staff used four survey instruments to collect demographic, behavioral, medical and service data on all adolescent clients receiving reproductive health services at the five peer provider clinics between July 1, 1996, and June 30, 1999. Each instrument was reviewed and approved by the Committee on Human Research of the University of California, San Francisco.

Three of the instruments were developed specifically for this evaluation. At his or her first visit to the peer provider clinic, each client was asked to complete a survey that elicited information about clinic access, pregnancy and STD risk factors, and reproductive and contraceptive history. A peer provider reviewed each survey for completeness and ac-

curacy during the private intake session with the client. Second, a peer provider administered a clinic questionnaire during the intake session and at each subsequent clinic visit to document whether the client was sexually active, frequency of birth control use, frequency of condom use to prevent STDs, use of birth control at last intercourse, primary method of birth control used prior to the visit, current pregnancy status and need for follow-up visits. Third, staff completed a form to document patient information and to track whether a telephone follow-up call had been successfully completed; the form followed up on STD tests (e.g., whether a test had been positive and when the client needed to return for treatment) and current birth control and condom use. In addition, staff completed the clinic visit report—a federal Title X billing form—to document demographic and clinical information, such as highest level of education completed, race, type of clinic visit, type of contraceptive supplies provided and conditions diagnosed or treated during the visit.

Types of Clinic Visits

Women and men could choose different types of clinic visit. Female clients were offered an “initial family planning” visit, consisting of a comprehensive gynecologic exam with a medical provider, reproductive health education, screening and treatment of STDs, and other necessary lab work. Female “limited” or “minimal” exams included some combination of education, counseling, birth control supply refill and STD testing. Women could also have a “pregnancy test-only” visit, which, as the name implies, included a pregnancy test and results.

Male clients were offered a “male medical exam,” which included reproductive health education, a physical exam, any necessary lab work, testicular self-exam education, and screening and treatment of STDs. Alternatively, men could have a “male supply” visit, which consisted of health education and condom disbursement, or an “STD-only” visit, which consisted of STD screening and treatment.

Sample

During the three-year study period, 7,486 female and 2,151 male adolescent peer provider clients completed a survey at their first clinic visit. We excluded 461 (6%) female and 471 (22%) male clients who indicated that they had never had sexual intercourse because such clients might not initiate sexual behavior and continue to attend the clinic.* Also, we excluded 3,549 female and 410 male clients who did not receive an initial family planning visit or male medical exam during their first visit, because these clients would not have been adequately exposed to the full model being tested. Furthermore, to examine behaviors and outcomes over time, we excluded 2,052 female and 1,104 male clients who did not make one or more visits at least 90 days after their initial family planning visit or first male medical exam. The final sample thus consisted of 1,424 female clients and 166 male clients—19% and 8% of the initial female and male populations, respectively.

TABLE 1. Percentage of clients of five peer provider clinics, and of those in the sample for a program evaluation, by selected characteristics, according to gender, California, 1996–1999

Characteristic	All clients (N=7,486)	Final sample (N=1,424)
Females		
Age		
≤14	3	2
15–17	43	53**
18–20	54	45**
Hispanic	47	41**
Born to adolescent mother	26	26
Aged ≤13 at first sex	15	16
Ever pregnant	26	21**
Ever gave birth	15	12
>1 sexual partner in last 6 mos.	26	27
Most of the time/always use alcohol before sex	4	4
Always use birth control	40	42
Always use condoms	28	35
Males		
Age		
≤14	6	3
15–17	42	50
18–20	52	47
Hispanic	44	37
Born to adolescent mother	20	24
Aged ≤13 at first sex	25	35**
>1 sexual partner in last 6 mos.	42	44
Most of the time/always use drugs/alcohol before sex	13	14
Always use birth control	42	46
Always use condoms	39	45

**Significantly different from all clients at $p \leq 0.01$.

Among females, a significantly larger proportion of the final sample than of the entire population were aged 15–17 (53% vs. 43%—Table 1); smaller proportions of the final sample than of the entire sample were aged 18–20 (45% vs. 54%), were Hispanic (41% vs. 47%) and had been pregnant (21% vs. 26%). Among males, 25% of the entire population had been aged 13 or younger at first intercourse, compared with 35% of the final sample. On average, the final samples of women and men made more clinic visits (4.3 and 3.4, respectively—not shown) than the entire female and male populations (2.4 and 1.5, respectively).

Measures

For data analysis, we retrospectively assigned clients to four groups, depending on their level of exposure to the peer provider model. Adolescents who received only clinical services—an initial family planning visit or a male medical exam, as documented in a clinic visit report—are referred to as clinic-only clients. Those who received clinical services and indicated on the survey that they had participated in an individual or group outreach, but who did not receive a follow-up phone call, are categorized as clinic-outreach clients. Female clients who received clinical services and were successfully reached for a telephone follow-up session as measured in a telephone follow-up form, but who did not receive outreach services are categorized as clinic-

*Females and males who were sexually inexperienced at first visit made an average of only 1.9 and 1.4 visits, respectively, during the study period.

TABLE 2. Percentages of female and male peer provider clinic clients, by contraceptive behavior, according to clinic visit; and odds ratios from ordered logistic regression analyses comparing the likelihood of behavior at last and first visit

Behavior	Females			Males		
	First visit (%)	Last visit (%)	Odds ratio	First visit (%)	Last visit (%)	Odds ratio
Frequency of birth control use						
Always	42	61	1.93**	46	51	1.41
Most of the time	23	15	na	22	26	na
Some of the time	16	13	na	21	18	na
Never	18	11	na	11	5	na
Birth control use at last sex						
Yes	61	74	1.78**	71	73	1.10
No	39	27	na	30	27	na
Type of method†						
Effective	10	49	3.54**	2	9	1.32
Less effective	50	24	na	68	63	na
No method	40	27	na	30	28	na
Frequency of condom use						
Always	35	27	0.65**	45	44	1.05
Most of the time	25	22	na	25	27	na
Some of the time	22	27	na	20	23	na
Never	19	25	na	11	7	na

**p<0.01. †The number of clients who reported no method was slightly higher for this question than for birth control use at last intercourse because the former asked about primary method of birth control used prior to the clinic visit and the latter asked if birth control was used at last intercourse. Note: na=not applicable.

telephone clients. Finally, female clients who received clinical services, outreach services and a follow-up telephone call are categorized as full-model clients.

To examine how client outcomes changed over time by level of exposure to the model, we compared the reported frequency of birth control use and of condom use to prevent STDs (each classified as always, most of the time, some of the time or never), and birth control use at last intercourse (yes or no) in the first and last clinic questionnaires. Bacterial STD (chlamydia, gonorrhea and syphilis) tests were verified and documented through the use of laboratory tests, as reported in the first and last clinic visit reports.* Finally, we examined the number and proportion of clients who made three or more visits during the three-year study period, as reported in the clinic visit reports.

To create the outcome variable of effective use of birth control at last intercourse, we examined the reported primary method of birth control used prior to the clinic visit. We categorized method used as effective, less effective or

TABLE 3. Adjusted odds ratios from logistic regression analyses assessing female clients' likelihood of reporting selected outcomes during the study period, by peer provider exposure group

Outcome	Clinic-only (N=526)	Clinic-outreach (N=124)	Clinic-telephone (N=624)	Full model (N=150)
Always use birth control	1.00 (ref)	1.06	1.25	1.40
Used birth control at last sex	1.00 (ref)	1.05	0.98	1.04
Used effective method at last sex	1.00 (ref)	0.95	1.32	1.35
Always use condoms to prevent STDs	1.00 (ref)	0.93	1.11	1.35
Positive bacterial STD test	1.00 (ref)	0.62	0.98	1.71
Returned for annual exam	1.00 (ref)	1.07	1.43*	2.19**
Positive pregnancy test	1.00 (ref)	0.76	0.88*	0.45
Made ≥3 visits	1.00 (ref)	0.79	1.09	1.70*

*p<0.05. **p<0.01. Note: ref=reference group.

no method, with effective methods being defined as those with which fewer than 5% of women experience a contraceptive failure during the first year of typical use¹⁵ (i.e., oral contraceptives, the implant and the injectable). Then, we examined whether birth control was used at last intercourse. This outcome was measured through the first and last clinic questionnaires. Positive pregnancy tests were verified and documented through the use of laboratory tests, as reported in the first and last clinic visit reports. Also, we examined the number and proportion of initial visits in the first year that were followed by an annual visit, as reported in the clinic visit report. Clients whose initial visit was in the third year were excluded from the analysis of this outcome because of insufficient time for follow-up visits.

In addition, we investigated for all outcomes whether any subgroups received more apparent benefit from the intervention than others. We did this by examining two-way interactions between the intervention group (clinic-only, clinic-outreach, clinic-telephone or full model) and the following covariates measured in the survey: born to an adolescent mother (yes or no), age at first sex (13 or younger, or older than 13), had been pregnant (yes or no), had given birth (yes or no), had had more than one sexual partner in the last six months (yes or no) and used alcohol or drugs before sex (most of the time or always yes). Furthermore, we examined Hispanic versus non-Hispanic ethnicity, from the clinic visit report.

We used linear regression for continuous outcomes, logistic regression for binary outcomes and ordered logistic regression for ordered categorical outcomes.¹⁶ For our simple exposure (yes or no) analysis, we examined the outcome at both times using a generalized estimating equation approach with robust standard errors to adjust for the potential correlation within a subject. The analysis looking at the effect of different exposures defined the outcome as the change in the variable of interest (e.g., birth control use) from first to last visit; for these analyses, we adjusted for the level at the first visit. We accounted for possible residual correlation of the outcomes within the clinics by using a generalized additive modeling approach¹⁷ and robust standard errors, with the unit of observation designated as the clinic.

RESULTS

Female clients were significantly more likely to report consistent birth control use (odds ratio, 1.9), birth control use at last intercourse (1.8) and use of effective birth control methods (3.5) at the last visit than at the first (Table 2). However, they were significantly less likely to report consistent condom use (0.7) at the last visit than at the first. Males showed no significant changes in any of these indicators between their first and last visits. Two percent of females and 3% of males tested positive for bacterial STDs at a visit after baseline (not shown); about one in eight women had a positive pregnancy test after the baseline visit.

*We could measure only bacterial STDs, because we did not know if viral STDs were new infections following enrollment in the program.

TABLE 4. Adjusted odds ratios from logistic regression analyses assessing male clients' likelihood of reporting selected outcomes during the study period, by peer provider exposure group

Outcome	Clinic-only (N=95)	Clinic-outreach (N=71)
Always use birth control	1.00 (ref)	0.76**
Used birth control at last sex	1.00 (ref)	0.95
Used effective method at last sex	1.00 (ref)	0.90
Always use condoms to prevent STDs	1.00 (ref)	0.79**
Positive bacterial STD test	1.00 (ref)	0.19
Made ≥3 visits	1.00 (ref)	0.73

**p<0.01. Note: ref=reference group.

Exposure Analysis

Among females, clients exposed to multiple components of the model were no more likely than clinic-only clients to always use birth control, have used birth control at last intercourse, have used an effective method at last intercourse, always use condoms to prevent STDs or have tested positive for a bacterial STD (Table 3). However, compared with clinic-only clients, clinic-telephone clients were significantly more likely to return for an annual exam (odds ratio, 1.4) and less likely to report a pregnancy at any follow-up visit (0.9). Full-model clients had elevated odds of returning for an annual exam (2.2) and of making three or more visits (1.7).

This analysis also demonstrated significantly improved outcomes based on different levels of exposure to the model for three subgroups of female clients (not shown). Hispanic clients who had received the full model were more likely than those in the clinic-only group to report consistent birth control use (odds ratio, 1.7; 95% confidence interval, 1.33–2.08) and less likely to report a pregnancy (0.2; 0.01–0.66). Clients born to adolescent mothers were more likely to report consistent birth control use (1.5; 1.41–1.66) and use of an effective method (1.7; 1.38–2.03) if they received the full model instead of only clinic services; they were more likely to report birth control use at last intercourse if they received clinic services and telephone follow-up (1.9; 1.54–2.46). Clients who reported at their first visit that they had had at most one sexual partner in the previous six months were more likely to make frequent clinic visits if they received the full model than if they received only clinic services (1.7; 1.35–2.17); they were less likely to test positive for pregnancy if they received clinic and telephone components (0.8; 0.69–0.92).

Among men, clinic-outreach clients were less likely than clinic-only clients to report at their last visit that they always used birth control or condoms to prevent STDs (odds ratio for each, 0.8—Table 4). There were no other significant differences between subgroups of male clients.

DISCUSSION

This study tested the effectiveness of a promising, comprehensive and rigorously implemented adolescent peer provider model in five California family planning clinics. The findings suggest that female clients of peer provider

clinics are significantly more likely to report at their last visit than at their first visit consistent birth control use, birth control use at last intercourse and use of effective methods. These results are consistent with those from another family planning clinic intervention.¹⁸ Adolescent female clients, however, were significantly less likely to report frequent condom use at the last visit than at the first. This reduced condom use may be due to women's adoption of more effective methods and reduced motivation to use a condom with another method. The peer providers recognized, however, that many of their clients would remain at risk of an STD, even when their pregnancy risk was reduced. Thus, they increased their emphasis on the need for condom use, and new educational strategies were implemented.

The full model was especially useful for Hispanic females, which is an important finding, given that adolescent birthrates among this population are among the highest in the country.¹⁹ In addition, the full model benefited those born to adolescent mothers, as well as a group of relatively low-risk clients—those who had had at most one sexual partner in the previous six months. The fact that the full model was particularly effective for certain subgroups underscores the value of tailoring programs to the needs of different adolescent clients.

Another dimension that must be taken into consideration is gender. The intervention showed that male clinic-outreach clients were less likely than clinic-only clients to report always using birth control and always using condoms to prevent STDs. Anecdotal conversations with program staff suggest that this may be due, in part, to the fact that the outreach, which placed a stronger emphasis on reaching underserved males than females, was able to successfully encourage high-risk males to access the clinic services. Nevertheless, the outreach was evidently not a strong enough strategy to encourage them to use birth control or to return for additional visits. In the future, it might be worth exploring adding the telephone component for males as well, particularly with the availability of technology (e.g., cell phones and beepers) that could ease confidentiality concerns.

Study Limitations

Our study had several limitations. First, we had to rely on adolescents' recall of their experiences with clinic outreach to document whether clients were exposed to this intervention component. It is possible that some clients were actually exposed to the peer provider outreach component, but did not recall or report their experience in the client survey, resulting in an undercount of clients who were reached by this program component. Second, our selection criteria reduced the final sample size to only 19% of the initial female population and 8% of the initial male population. We excluded clients who reported at their first visit never having had sex; however, that 6% of females and 22% of males visited the clinic before they had ever had intercourse is an important finding. These clients appeared to be especially motivated to prevent a pregnancy or STD by

seeking reproductive health services before their sexual debut; however, as clients who were not sexually active were not tracked longitudinally, we did not test the effects of the peer provider model on this important subgroup.

In addition, we restricted our sample to clients who received an initial family planning or male medical exam, because such were the main features of the comprehensive model protocol. With this requirement, we excluded clients who received other types of clinic services, and lost the opportunity to ascertain whether components of the program would be effective in converting these clients to full-fledged clients. Furthermore, we excluded clients who did not have another visit 90 days or more after their first visit, because we wanted to examine change over time and needed to allow for a sufficient follow-up period to be able to detect differences. As other researchers have suggested,²⁰ even 90 days may be too short to determine if changes in adolescents' sexual risk-taking behaviors would be long-lasting.

Perhaps the most important limitation of this study was the lack of comparison data. We had attempted to collect data from clients in traditional family planning clinics with similar patient populations, but faced a number of challenges. First, the services comparison clients received were in several ways quite similar to those provided in the peer provider clinics. Although staff members at comparison clinics were adults, they were often young adults and may have looked not much older than the teenage staff in the treatment settings. Also, as the peer provider clinics did, some comparison clinics conducted family life education in local schools and advertised their services in the community. Finally, although we provided an annual honorarium and made persistent efforts to increase participation in data collection, comparison clinics administered far fewer instruments than anticipated. This may have been because comparison clinics did not have sufficient staff to oversee completion of the evaluation forms or because trained staff frequently moved between departments or ended their employment with the clinic.

We considered expanding the data collection to additional clinics; however, this proved to be too difficult, as nearly every community-based family planning clinic in California that matched the demographic profile of this study's clients had incorporated adolescent-oriented services. Also, we did not have access to data from the five study clinics predating the peer provider program that could be used for comparison because the majority of variables were from data collection forms created for this evaluation. The preliminary research reported in this article would be substantially strengthened if a viable comparison group with an accompanying longitudinal follow-up design of up to 18 months could be incorporated into the next evaluation activities.

Conclusions

In this article, despite substantial methodological limitations, we have documented the potential utility of the peer provider model as a strategy for family planning clinics, specifically in serving female Hispanic adolescents and those

born to teenage mothers. The comprehensive nature of the model, including high-quality training and supervision and rigorous adherence to the model's protocol, bodes well for subgroups of clients who are often difficult to serve. Given the substantial numbers of adolescents who remain in need of family planning care, testing new refinements to the delivery of care to better serve different segments of the sexually active adolescent population is imperative. The peer provider model appears to be a promising addition to the mix of service delivery models.

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