

A UNIVERSITY AND COMMUNITY-BASED ORGANIZATION COLLABORATION TO BUILD CAPACITY TO DEVELOP, IMPLEMENT, AND EVALUATE AN INNOVATIVE HIV PREVENTION INTERVENTION FOR AN URBAN AFRICAN AMERICAN POPULATION

Geraldine Oliva, Jennifer Rienks, Ifeoma Udoh,
and Carla Dillard Smith

Through forming a collaborative relationship to develop, pilot and evaluate an innovative bio–psycho–behavioral (BPB) HIV prevention intervention, capacity was built in developing an effective intervention and conducting community based research at both the California Prostitutes Prevention and Education Project (CAL–PEP) and the University of California’s Family Health Outcomes Project.

The research objective was to investigate whether the BPB intervention that included sexually transmitted diseases (STD) testing and behavioral counseling, is superior to standard HIV counseling and testing. This necessitated building capacity at CAL–PEP to deliver clinical services, implement the counseling model, conduct outreach and follow-up, and manage data. University of California, San Francisco, staff needed to build capacity to listen to and incorporate feedback from staff with widely diverse educational and cultural backgrounds. The outcome was to develop the study questionnaire and effective follow-up systems as well as to be able to teach research methods to these staff. Frequent staff meetings to promote trust and mutual respect, incorporating staff and client input into the

Geraldine Oliva and Jennifer Rienks are with the University of California, San Francisco. Ifeoma Udoh and Carla Dillard Smith are with the California Prostitutes Education Project, Oakland.

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Address correspondence to Geraldine Oliva, MD, MPH, University of California, San Francisco, Family Health Outcomes Project, 3333 California St., Suite 365, San Francisco, CA 94118; e-mail: olivag@fcm.ucsf.edu

intervention design, and ongoing training and quality assurance processes were critical to the project's success.

Preliminary analyses indicate the BPB intervention is effective at improving condom related attitudes, self-efficacy to use condoms, and intentions to practice other HIV/STD risk reduction.

In the 20 years since the onset of the HIV epidemic, there has been a massive effort by public health departments, community-based agencies and university-based researchers, to develop effective strategies for the prevention of HIV in those groups identified to be at highest risk. Researchers have conducted trials that rigorously evaluated the effectiveness of theory-based behavioral interventions to assist persons in reducing their risk for contracting HIV infection (Kelly, Somlai, et al., 2000). There is wide consensus that those interventions having a conceptual foundation in social-cognitive theory (e.g., Bandura, 1986; Catania, Kegeles, & Coates, 1990) have been effective in published outcome studies undertaken in a wide variety of populations, including gay men (Peterson et al., 1996; Valdiserri et al., 1989), women (DiClemente & Wingood, 1995; Hobfoll, Jackson, Lavin, Britton, & Sheperd, 1994), and persons with sexually transmitted diseases (National Institute of Mental Health, 1998). A National Institutes of Health (NIH, 1997) scientific review panel recently found that the research evidence supporting the efficacy of these interventions to be so strong that it recommended that the interventions be used by service providers with their clients.

Despite the evidence for effective strategies and the NIH recommendations, a survey of AIDS prevention service providers (Somlai et al., 1999) found that the interventions most frequently delivered to women and gay men were brief "AIDS 101" talks, street outreach with educational messages, and brochure distribution. Another survey of community-based organizations (CBOs) (Goldstein, Wrobel, Faigeles, & DeCarlo, 1998) showed that fewer than 10% of CBOs surveyed use scientific publications as a source of information in their work. In contrast, the interventions identified by AIDS service organizations as most needed but not offered were intensive risk reduction skills-building workshop interventions, community-level interventions, social marketing campaigns, and specialized service for hard-to-reach, high-risk, and young clients. One explanation for the lack of effective strategies being widely implemented in the community-based agencies that play a major role in providing services to those populations at high risk is the lack of appropriate training or resources.

Clearly, in order to more effectively translate effective HIV prevention interventions to CBOs, a major focus needs to be initiated to build capacity in university researchers to learn to work effectively with CBOs in both adapting proven interventions to particular communities and cultures and in cooperatively developing more culturally appropriate and effective interventions. At the same time it is critical to build capacity in CBOs to adapt and incorporate proven strategies and to actively participate in the development and design of more effective theory based interventions. This article describes a collaborative research project between the California Prostitutes Education Project (CAL-PEP) and the Family Health Outcomes Project (FHOP) at the University of California, San Francisco (UCSF) that had, as an integral piece of its design, capacity building. It presents the study design and the three components of the BPB intervention, the structure of the collaborative, and the study findings. We then identify and describe the capacity building activities and the practices that were developed to successfully accomplish this.

THE HOT ZONE PROJECT

BACKGROUND

In 1997, with African Americans representing 63% of Alameda County's AIDS cases but only 13% of the county's population (California Department of Health Services, STD Control Branch, 1999), a broad based group of concerned stakeholders including elected officials, public health officials, and the HIV/AIDS service community met and determined that the AIDS crisis in the local African American community constituted a state of emergency. As a result, on November 12, 1998, the Public Health Officer of Alameda County became the first local health officer in the nation to declare a state of emergency with respect to African Americans and HIV/AIDS.

Within this context, staff from CAL-PEP and FHOP began discussing ways to address the African American HIV epidemic in Oakland. Both of the partners' prior research and field experiences led them to the belief that AIDS prevention efforts could be more effective by using a more comprehensive intervention targeting three areas: the biological, the psychological, and the behavioral. This experience was supported by the findings of a recently published meta-analysis that found that traditional HIV testing and counseling made no difference in rates of adoption of safer sexual behaviors among those testing negative for HIV, when compared with those not being tested (Weinhardt, Carey, Johnson, & Bickham, 1999).

The biological approach was supported by mounting evidence that sexually transmitted diseases (STDs) increase the risk of HIV transmission (Centers for Disease Control and Prevention [CDC], 1998), and that treatment of STDs reduces the spread of HIV (Wasserheit, 1992). In addition, previous history of being treated for STDs was shown to be associated with increased use of condoms (Fleisher et al., 1994). On the psychological and behavioral levels, both the health belief model (Janz & Becker, 1984; Rosenstock, 1974) and Protection Motivation Theory (Maddaux & Rogers, 1983) emphasize that behavior change is related to the level of risk perception. The transtheoretical model of the stages of change emphasizes the behavioral influence of weighing the pros and cons of a behavior (Prochaska & DiClemente, 1984). Both social-cognitive theory (Bandura, 1994) and the information-motivation-behavioral skills model (Fisher & Fisher, 1992) have emphasized the importance of accurate information, motivation, self-efficacy, and behavioral skills.

COLLABORATIVE FRAMEWORK

CAL-PEP is a nonprofit organization, founded in 1985 by ex-prostitute Gloria Lockett, whose mission is to provide comprehensive HIV/STD prevention education, drug treatment, case management, and peer treatment advocacy services targeting primarily people of color who, owing to fears of punitive legal action related to their drug use and sex work, are alienated from conventional services provided by the public health system. CAL-PEP has engaged in numerous AIDS and STD prevention projects. Among these were the Women's and Infants Demonstration Project (WIDP), a multisite study funded by the CDC to organize peer networks of young women to distribute risk reduction behavior information. It was during the WIDP that CAL-PEP's executive director first met Dr. Geraldine Oliva, who was at that time leading a sister WIDP project in the San Francisco Department of Public Health, and began a relationship that later grew into this current project. CAL-PEP also participated in the California Health Outreach Project (CHOP). CHOP used mobile vans going to neighborhoods in the targeted Bay Area communities selected for high rates of STDs, drug use, and prostitution and provided physical exams, STD screening and treat-

ment, and HIV testing and counseling. Although CHOP was found to be effective (Harder + Company Community Research, 1995), funding was discontinued.

FHOP at the University of California, San Francisco, was founded in 1992 by Dr. Oliva with a mission of improving the health of children and their families and communities by increasing the capacity in public health departments, nonprofit agencies and communities to use data and evidence-based strategies for program planning, ongoing monitoring, and evaluation of health programs. Projects have included a number of federal and university sponsored HIV prevention research studies.

CAL-PEP and UCSF have maintained both formal and informal working relationships on projects affecting high-risk populations in the Bay Area since 1992. This resulted in building mutual trust and respect and a sense of a shared mission.

This current project was a joint partnership between CAL-PEP and UCSF. The basic study design and the development of the intervention were done collaboratively with staff from both organizations. UCSF took primary responsibility for developing clinical and counseling protocols, producing the materials used in the intervention, creating data collection instruments, and analyzing the data. CAL-PEP was responsible for actually delivering the intervention, collecting the data, and entering the data. Both agencies collaborated in making changes to the intervention when there was a need and in discussing and interpreting the findings.

METHODOLOGY

STUDY DESIGN

Our study goal was to compare an intervention that targets the biological, psychological, and behavioral levels with traditional HIV testing and counseling effectiveness in encouraging the adoption of risk reduction intentions, increasing perceptions of self efficacy to use condoms, and promoting positive attitudes about the use of condoms.

Using a quasi-experimental design, we randomly assigned the 10 zip codes with the highest rates of chlamydia and AIDS for African Americans to be either an intervention or a control zip code. Control zip codes received standard HIV testing and counseling alone, whereas intervention zip codes received a BPB intervention with their HIV testing and counseling. Services in both conditions are provided on the CAL-PEP mobile clinic that visits neighborhoods in the study zip codes. All clients completed a baseline interview prior to receiving services, and completed a follow-up interview after returning to the clinic approximately 1-2 weeks after their initial visit to receive their test results.

ELIGIBILITY

Participants in this study had to engage in at least one of the following risk behaviors within the last year: injected drugs; used crack, amphetamines, cocaine, nitrates/nitrites, or ecstasy; had sex with a sex worker; did sex work; was a man who had sex with men (MSM); or had a sex partner who had injected drugs, was HIV-positive, or was an MSM. In addition, female participants had to be between 18 and 44 years of age and men had to be between 18 and 55. All participants also had to be sexually active, which the project defined as having had sex at least once in the last 5 months. Pregnant women were excluded, as were women trying to get pregnant and men in exclusive relationships in which they were trying to get their partner pregnant. Finally, participants also had to plan on living in the area for the next year and had to be willing to have a physical exam.

BIO-PSYCHO-BEHAVIORAL INTERVENTION

We created the BPB intervention to target potential factors in each of these domains. On a biological level, in addition to HIV testing and counseling, the intervention includes a physical exam to check for signs of sexually transmitted infections, a wet mount for women to assess the presence of bacterial vaginosis and trichomoniasis, urine screening for gonorrhea and chlamydia, and treatments for many of these STDs.

The psychological intervention targets risk perceptions, knowledge, motivations, and efficacy. Counselors present AIDS and chlamydia “hot zone” maps that illustrate the number and ethnicity of AIDS and chlamydia cases in Alameda County by zip codes. Clients are shown these maps, shown that the zip they live in has a large number of African American AIDS and chlamydia cases, and told about the state of emergency for African Americans and AIDS in an effort to increase awareness that engaging in risky behavior in an AIDS and STD hot zone is putting them at greater risk than engaging in these behaviors in neighborhoods where the rates are lower.

Clients also receive STD education that includes: descriptions and pictures of the most common STDs; their symptoms, or lack of them, and consequences; the need for examining oneself and one’s partner, and the importance talking about STD with partners and seeking regular medical screening for latent disease.

To provide clients with models for behavior changes, we used role-model stories (a strategy that had been used in the WIDP Projects) developed by the project. These stories are about individuals who have engaged in risky behaviors and have taken some action to make them safer either before or after suffering a negative consequence.

Behavioral skills are also emphasized in the counseling session, during the physical exam, and in an optional group workshop. Clients are instructed on how to use condoms, negotiate for condom use with sex partners, and how to clean drug-injecting equipment.

INSTRUMENTS

The baseline questionnaire includes measures of HIV and STD risk perceptions, decisional balance scales for condom use, self-efficacy for condom use, sexual and drug-using practices, and future intentions to change these behaviors. It also includes questions eliciting demographic data, health insurance status, use of primary care and reproductive health services, and current treated and untreated medical conditions. The follow-up questionnaire administered after giving clients their test results repeats the questions from the baseline questionnaire regarding risk perceptions, decisional balance scales, self-efficacy, and future behavioral intentions. A form was also developed to collect medical history information and record diagnosis and treatment information for clients in the intervention condition.

FINDINGS

A total of 667 clients participated in the study, 365 in the intervention condition and 302 in the control condition. Clients are predominantly African American (88.2%), and 54.6% are male. Twenty-three percent are age 18-25 years old; 25.8% are age 26-35; 42.6% are aged 36-45, and 9.1% are aged 46-55. Half of the clients (50.2%) are unemployed, 36.9% have household incomes of less than \$500 a month, and 44.5% have less than a high school diploma. Ninety-four percent of men and 66.7% of women were heterosexual. Most clients (71.7%) are single and only 24% live with

a spouse or a sex partner, while 27.4% report living with children. Approximately 40% of clients have been homeless in the last year.

SUCCESSFUL RECRUITMENT OF HIGH RISK CLIENTS

Analyses of the baseline data indicate that CAL-PEP outreach workers were very successful in reaching a very high-risk population and recruited them in for services. In total, 194 clients (29.1%, confidence interval [CI]: 25.7–32.7) indicated that they had traded sex for money, drugs, or shelter in the past year. More than half the clients (59.1%, CI: 1 55.2–62.8) report having had more than one sexual partner in the last 6 months, 60.4% of men (CI: 1 55.2–65.5) and 57.4% (CI: 1 51.6–63.1) of women. Forty percent (CI: 1 35.6–43.1) said that they used crack cocaine in the last year. Roughly one in five clients (21.7%, CI: 1 18.7–25.1) indicated that they had used drugs intravenously in the last year. Out of 118 clients who said they injected drugs in the last 30 days, 29.7% reported sharing needles.

Return rates for receiving test results were constant: overall, 71%; intervention, 70%; and control, 72%.

PROVISION OF CLINICAL SERVICES AND STD RATES

Despite the difficulties in clinician recruitment and retention and the delay in obtaining certification, 221 (60.5%) of the intervention clients had physical exams and 99 of the female clients had wet mounts. Nine women (9.1%, CI: 1 4.2–16.6) were diagnosed with trichomoniasis and 26 (26.3%, CI: 1 17.9–36.1) had bacterial vaginosis. CAL-PEP staff successfully completed urine screening for chlamydia and gonorrhea for the majority of clients in the intervention condition. Of the 320 clients receiving urine screening for chlamydia, 16 (5.0%, CI: 1 3.0–8.2) tested positive. Of 319 clients screened for gonorrhea, 7 (2.2%, CI: 1 1.0–4.7) tested positive. Including other STDs diagnosed during the physical exam, 16% of clients (55 of 344 who had any diagnosis data) in the intervention condition were diagnosed with a STD at baseline. Having the clinician provide physical exams yielded more STD diagnoses. Twenty percent of clients who were physically examined received an STD diagnosis as opposed to only 8.2% for clients who just had the urine screening without a physical exam (odds ratio [OR]: 2.8, CI: 1 1.4–5.8). Of the 667 clients from both conditions tested for HIV, 1.6% (CI: 1 0.9–3.0), or 11 people, tested positive.

CHANGES IN PSYCHOLOGICAL VARIABLES

A condom attitude measure was assessed at baseline and at 1-week follow-up. Clients were asked to specify whether an item is “very important,” “somewhat important,” or “Not at all important” in their decisionmaking about condom use. The questions about self-efficacy for condom use address the clients’ ability to always use condoms in a variety of situations (e.g., using condoms when under the influence of alcohol or drugs). Clients were asked to rate how confident they were using a 3-point scale similar to the one used for condom attitude questions.

Scores were computed to measure changes in condom attitudes between baseline and follow-up (1–2 weeks). Clients who either increased their rating of an item’s importance or who maintained a rating of “at least somewhat important” in their decisionmaking about condom use between baseline and follow-up received a score of 1. Clients who either decreased their rating of an item’s importance or maintained that it was “not at all important” from baseline to posttest results received a score of 0. Table 1 summarizes Cochran-Mantel-Haenszel chi-square analyses comparing condom attitudes in the intervention and comparison conditions from baseline to after

TABLE 1. Condom Attitudes: Comparing % Increasing Importance or Maintaining Item Is At Least Somewhat Important in Condom Use Decision (vs. Becoming Less Important) for Comparison and Intervention Conditions From Baseline to Test Results Visit

	% Increasing or Maintaining Item at Least Somewhat Important						Odds Ratio	(LCI – UCI)
	Comparison		Intervention		%	N		
	N	%	N	%				
Main Sex Partner								
Pros								
1. You would be safe from disease.	41	27.6	77	51.7			2.8	1.7–4.5
2. You would feel more responsible.	49	32.9	84	55.3			2.5	1.6–4.0
3. Condoms protect you and your partner	40	26.7	85	56.3			3.5	2.2–5.7
4. You (she) would be safer from pregnancy.	39	30.7	65	51.2			2.4	1.4–3.9
5. Condoms keep you healthy to make babies in the future.	34	26.4	68	53.1			3.2	1.9–5.3
6. Condoms are easy to get.	44	30.1	76	51.4			2.4	1.5–3.9
Cons								
7. Condoms make sex feel unnatural.	65	43.3	57	39.0			<i>ns</i>	
8. Condoms would be too much trouble.	43	29.3	41	27.3			<i>ns</i>	
9. Your partner would be angry if you wanted to (start to) use condoms.	45	27.3	39	30.2			<i>ns</i>	
10. You would have to get your partner to agree to use condoms.	45	30.2	39	27.3			<i>ns</i>	
11. Your partner would think you do not trust him/her.	41	28.3	50	34.7			<i>ns</i>	
Other Sex Partner(s)								
Pros								
1. You would be safe from disease.	17	26.2	47	52.8			3.2	1.6–6.3
2. You would feel more responsible.	19	28.4	42	48.3			2.4	1.2–4.6
3. Condoms protect you and your partner.	19	22.4	42	46.2			3.1	1.5–6.0
4. You (she) would be safer from pregnancy.	15	26.8	40	48.8			2.6	1.3–5.4
5. Condoms keep you healthy to make babies in the future.	19	33.9	47	33.9			3.2	1.3–5.1
6. Condoms are easy to get.	19	30.7	48	51.8			3.1	1.6–6.2
Cons								
7. Condoms make sex feel unnatural.	19	35.2	30	44.8			<i>ns</i>	
8. Condoms would be too much trouble.	19	31.2	25	31.7			<i>ns</i>	
9. Your partner would be angry if you wanted to (start to) use condoms.	18	28.1	28	34.2			<i>ns</i>	
10. You would have to get your partner to agree to use condoms.	23	37.1	24	29.6			<i>ns</i>	
11. Your partner would think you do not trust him/her.	30	46.9	29	35.4			<i>ns</i>	

Note. LCI = lower confidence interval; UCI = upper confidence interval; *ns* = nonsignificant.

initial test results. The success of the counseling component of the intervention is illustrated by significantly more clients in the intervention condition being likely to maintain or increase perceptions of the importance of condoms in their decision to use them with both main and other partners when compared with clients in the control condition. There were no differences between the intervention and comparison condition with regard to the changes in the cons of condom use with either main or other partners.

At follow-up almost 40% of clients in the intervention condition felt that it was very important that condoms “keep you healthy to make babies in the future” compared with only 13% in the control condition. This finding suggests that the intervention strategy of stressing non-HIV-related reasons for using condoms is successful in maintaining their perceived importance in decision making. Overall, these findings indicate that the BPB intervention appears to have been successful at increasing the perceived importance of using condoms.

Change scores were calculated for efficacy to use condoms. If clients improved their sense of self-efficacy or remained at least somewhat efficacious about using condoms in a given scenario from baseline to after receiving test results, then they received a score of 1. If clients decreased their sense of self-efficacy or reported “no confidence at all” in their ability to use condoms in a given situation, then they are given a score of 0. Cochran-Mantel-Haenszel chi-square analyses comparing changes in efficacy between the intervention and comparison groups from baseline to after receiving test results are summarized in Table 2.

Significantly more clients in the intervention condition report improving or maintaining at least some sense of self-efficacy to use condoms with their main sex partner in five out of six situations when compared with clients in the comparison condition. Differences in maintaining or improving self-efficacy for condom use with other partners were not significantly different between the two conditions.

CHANGES IN OTHER HIV/STD RELATED BEHAVIORAL INTENTIONS

We also created change scores for intentions regarding STD and HIV risk behaviors and measured the differences between baseline intentions and intentions after getting standard HIV testing and counseling or the BPB intervention and returning and receiving test results.

People who improved or maintained an intention received a score of 1 and those who reverted from intending to not intending or maintained no intention from baseline to after test results disclosure received a 0. Cochran-Mantel-Haenszel chi-square analyses showed that clients from the intervention condition differed from clients in the control condition in two measures: asking partners about STDs (70.6% vs. 55.4%, OR : 1.97, CI : 1 1.3–2.9) and checking partners for sores and lesions (85.2% vs. 58.3%, OR : 4.1, CI : 1 2.6–6.4). This demonstrates the effectiveness of the test counselors in conveying these messages to intervention clients.

CAPACITY DEVELOPMENT

The CDC (2000) defines capacity building as technical assistance, training, information sharing, technology transfer, materials development or funding that develops, enhances, or sustains an organization to better serve customers or operate in a more comprehensive responsive and effective manner. The design and ambitiousness of the project’s intervention necessitated significant capacity building for CAL-PEP. Capacity-building activities focused on four primary areas: client location, recruitment, and

TABLE 2. Self-Efficacy: Comparing % Increasing or Maintaining at Least Some Self Efficacy to Use Condoms in a Given Situation (vs. Decreasing Self-Efficacy) for Comparison and Intervention Conditions from Baseline to Test Results Visit

	Comparison		Intervention		Odds Ratio	(LCI – UCI)
	N	%	N	%		
Main Partner						
1. When you think that the risk for disease is low	51	38.9	72	55.8	1.98	1.2–3.2
2. When a condom is not right on hand.	60	46.2	73	58.9	1.67	1.0–2.7
3. When you have been using alcohol or other drugs.	54	42.5	69	59.0	2.0	1.2–3.2
4. When you are sexually aroused.	53	41.4	76	62.3	2.3	1.4–3.9
5. When you think your partner might get mad about using it.	53	39.6	67	56.3	1.94	1.2–3.2
6. When you are already using another method of birth control.	57	42.2	66	58.9	1.96	1.2–3.3
Other Partner						
1. When you think that the risk for disease is low	26	39.4	40	48.7	<i>ns</i>	
2. When a condom is not right on hand.	32	48.5	38	48.1	<i>ns</i>	
3. When you have been using alcohol or other drugs.	24	43.6	39	51.3	<i>ns</i>	
4. When you are sexually aroused.	29	41.4	41	53.3	<i>ns</i>	
5. When you think your partner might get mad about using it.	25	36.2	41	50.6	<i>ns</i>	
6. When you are already using another method of birth control.	25	39.7	37	52.1	<i>ns</i>	

Note. LCI = lower confidence interval; UCI = upper confidence interval; *ns* = nonsignificant. Not all subjects had main or other sex partners, and not all subjects with main and sex partners answered all questions. Changes in self-efficacy are only measured for subjects who have both a pretest measure and a posttest measure.

follow-up; the provision of clinical services; the development and delivery of more complex intervention activities; and the acquisition of data entry and data management skills.

OUTREACH, RECRUITMENT, AND FOLLOW-UP

CAL-PEP and FHOP needed to build capacity in the area of outreach, recruitment, and follow-up. This project required CAL-PEP to provide the intervention only in zip codes that had been randomly assigned to the intervention condition, and HIV testing and counseling only in the zip codes assigned to the control condition. Within each zip code, CAL-PEP staff had to identify neighborhoods where African American sex workers and drug users congregated and find suitable locations for the mobile clinic to be parked. Ideally, staff tried to identify a CBO providing a social service in the neighborhood that would let us use some rooms to conduct the interviews for this project. Once a location was selected, outreach workers went around the area and told people at high risk for HIV and STDs about the services they could get from the mobile clinic and when it would be in the area. When people came to the van, staff had to screen them to determine eligibility to participate in our study, and if ineligible, had to determine for which of CAL-PEP other projects they were eligible.

Getting clients who are often drug addicted and engaging in other illegal activities to return to the mobile clinic a week later was a significant challenge. To meet the research goal of at least a 70% return rate, many strategies had to be developed and deployed. CAL-PEP conducted a discussion group with clients to get their input on the best ways to contact them. CAL-PEP and FHOP learned a lot from both staff and clients who participated in the discussion group about what was needed. As result of the group discussions, CAL-PEP began placing flyers in areas frequented by clients advertising the incentive available for returning for results. CAL-PEP staff collecting locator information were also trained to try and to detect phony addresses and adopted a procedure of actually calling contact phone numbers given to make sure the numbers checked out before clients left the van after their initial visit. Appointment reminder cards were also developed and distributed. Clients and staff learned to promptly initiate efforts to locate a client if the client failed to come back for test results the week following the initial visit.

CLINICAL SERVICES

CAL-PEP was not a medical provider, and in order to provide medical services on the mobile clinic, CAL-PEP overcame many hurdles. First, CAL-PEP had to locate a physician assistant and find a clinic or other facility to provide supervision of the clinician and malpractice insurance. Although Alameda County initially agreed to provide clinical supervision for a physician assistant, there was not initial agreement to examine all clients as our intervention protocol required and only symptomatic clients were initially given exams. The county also insisted that CAL-PEP secure Clinical Laboratory Improvement Amendments (CLIA) certification to provide women with wet mounts to screen for bacterial vaginosis and trichomoniasis. The health department also required FHOP to develop the clinical protocols for the physical exam, and STD screening and treatment. By the time CLIA certification was finally obtained, the project was already on its third clinician, who informed us that she too was leaving and would need to be replaced. After 1 year of providing supervision, the county decided to withdraw from the project. CAL-PEP then had to establish another relationship with a facility. The physician decided to return back home to the East Coast, and unfortunately this again left the project without a clinician for several weeks. Another

physician was finally located and continues to work with the project, and the county again agreed to provide supervision and malpractice insurance. In addition to securing a clinician, CAL-PEP staff also had to learn to equip and maintain an examination room and to process urine specimens for chlamydia and gonorrhea screening.

FHOP participated in many of the meetings with county officials, county clinics and regulatory agencies as an advocate for the project and in order to later assist CAL-PEP in responding to the concerns raised. Through these experiences FHOP learned a lot about what it takes to adapt clinical services to an alternative setting such as a mobile van and the hurdles that a CBO needs to overcome in getting required certifications, necessary equipment, and competent staff who are able to adapt to this type of environment.

INTERVENTION DEVELOPMENT AND DELIVERY

Participating in this research project necessitated that CAL-PEP increase capacity to vigorously participate in the development and implementation of a new type of counseling intervention. This collaboration provided CAL-PEP with an opportunity to hear the university/researcher approach to intervention development, which includes the use of epidemiological data and problem analysis, key findings from a review of the AIDS prevention and behavior change literature, and past experience in conducting research projects.

In designing and implementing the counseling intervention, FHOP had to learn how to communicate with and actively involve the CAL-PEP staff. In one instance FHOP staff facilitated group discussions with CAL-PEP counselors and outreach workers to discuss the positive and negative aspects of their work. Staff described the challenges of working with a population within their own community that had so many problems and barriers to healthy behavior and were frequently resistant to the messages and even hostile to the staff. FHOP had to learn to listen to an entirely different perspective and make compromises that would make the intervention feasible given the staff and the setting.

Through this project, CAL-PEP staff learned how to present epidemiological data to their clients and use it as a tool to help increase knowledge and motivate behavior change. CAL-PEP and FHOP researchers both learned the importance of taking time to pilot intervention components, solicit feedback from the clients and field staff, and then refine the components. An excellent example of this is the hot zone maps, which went through significant revision to make them more effective in representing the disproportionate impact AIDS and STDs are having on the African American population of Alameda County. Continuing to follow this feedback cycle for quality control once the intervention has been developed was also very important to ensure consistency in intervention delivery.

CAL-PEP's HIV test counselors learned to provide enhanced STD education and counseling, how to present data to clients, and how to probe and individualize discussions to stress the reason for condom use that are most relevant and important to the client.

It was necessary to conduct regular quality assurance meetings with the counseling staff to ensure continuity of intervention delivery and to help them share and process their experiences. The meetings provide support to counselors who may become discouraged or overwhelmed by the complexity of medical and social problems presented by their clients. The meetings also provide an opportunity for researchers to lis-

ten to the perspective of staff in the field about how the intervention is being received by the clients.

Another benefit of these meetings was that the test counselors, many of whom are former drug addicts and/or sex workers, have a lot to share with each other about effective counseling strategies or “best practices.” Counselors are able to articulate easily understandable, realistic suggestions for risk reduction approaches that are acceptable to clients. For example, an ex-injector reported an experience with a young woman heroin addict whose boyfriend had been injecting her since she was 13 years old. He also shared his “works” with other friends. The young woman was afraid to ask him to stop. The counselor suggested that short of getting into drug treatment, she reduce her risk by cleaning the equipment herself when her boyfriend was not home and showed her how to do so.

Regular quality control meetings with the test counselors were also important for identifying additional educational needs for the clients. One test counselor, an ex-injector, became very concerned when young clients in certain neighborhoods reported high levels of heroin snorting. These young people believed that snorting heroin was less addictive than injecting it. The counselor’s experience was that snorting heroin lead to a “stomach addiction,” a sick feeling in the stomach only relieved by more snorting, and requested that the project develop role model stories he could distribute that would address this problem.

DATA ENTRY AND DATA MANAGEMENT

Based on CAL-PEP’s expressed desire to increase capacity in data entry and management, the collaborative agreement required that CAL-PEP do all of the data entry using templates developed by UCSF staff. UCSF also provided training and developed quality control procedures. This turned out to be the most problematic area for capacity building. Because of frequent changes in staff and the use of staff with little or no background in data entry for a research project, there were many delays and mistakes made. Great improvements were made when CAL-PEP assigned an additional staff member that had academic training in this area to take responsibility for supervising data entry and reviewing the quality of enter data.

DISCUSSION

The capacity-building activities undertaken by this project were successful in a number of areas and important lessons were learned that lead us to recommend certain best practices for others embarking on similar projects.

LOCATION OF HIGH-RISK, HARD-TO-REACH CLIENTS

In response to the initial experience of low follow-up rates, follow-up protocols needed to include creative ways to locate clients that included a routine practice of double-checking the authenticity of phone numbers and addresses that clients gave while the client was still in the van.

Recommend Best Practice. Consult with the target group for strategies on how to best locate them for follow-up, collect, and where possible verify more locator information, including prison identification numbers if working with a population frequently in-and-out of jail. Initiate aggressive attempts to locate clients after their first no-show for getting their HIV and STD test results.

EXPANDING CLINICAL SERVICES

CAL-PEP and FHOP were able to network with a number of medical service providers, including the county health department, and to obtain clinician services and the provision of malpractice insurance coverage, as well as obtain CLIA certification for doing lab work. Staff learned to administer and process laboratory results and to assist the clinicians. Analyses of the data collected as well as STD results indicate that the project has been able to intervene with very hard to reach high-risk populations, including sex workers and drug users and provide screening services that are very important to decreasing their risk for HIV and STDs.

Working together in establishing the clinical component also contributed to a new level of legitimization for CAL-PEP in this area. For example, during the course of the project, meetings that included CAL-PEP and FHOP resulted in the recognition by the County Health Department that CAL-PEP had a contribution to make in the delivery of clinical services. In fact, they are now encouraging CAL-PEP to acquire a clinic license to be able to bill Medi-Cal (California's Medicaid program) and Family PACCT (California's supplemental family planning program).

Recommended Best Practice. For a CBO to add a clinical component to its array of services and for a researcher working in the community, we recommend partnering with an existing clinic, or identifying a partner, or paid consultant with clinical and administrative expertise to interact with professional licensing institutions, and develop adequate protocols and quality assurance practices.

DEVELOPING AND IMPLEMENTING ENHANCED HIV COUNSELING AND TESTING PROTOCOLS

Counselors were also able to acquire the skills necessary to implement an expanded and more complex counseling intervention. This required that they understand important pieces of information about STDs, the epidemiology of the AIDS epidemic in Alameda, and some basic concepts about psychological and behavioral theory-based strategies. They then had to learn how to translate that information into counseling techniques and eventually truly value the contribution of using that information in benefiting their clients. For FHOP, this meant learning to translate research concepts into an appropriate training curriculum for CAL-PEP staff and being willing to adapt counseling protocols that staff found unwieldy. This was fostered by the ongoing practice of having UCSF staff participate with intervention staff in regular meetings with CAL-PEP and FHOP project directors to discuss the successes and failures in implementation of the study protocol.

Another important value of regular meetings and one that is stressed by Kelly, Sogolow, and Meumann (2000) was an opportunity to elicit input early in research planning to answer questions about whether or not the service agencies that are the intended users of the researched intervention will have the resources, staffing, and capacity to implement the approach if it is shown to be effective in a research trial. For this project, it was essential to work with the intervention staff to find approaches that would work in the "real CAL-PEP world" while not compromising the integrity of the research and also to monitor the immediate impact of the changes on clients. For example, after counselors complained that the number of hot zone maps was confusing to clients, CAL-PEP conducted discussion groups with clients to identify which and how many maps would be most effective. This resulted in decreasing the number of maps used. Counselors immediately reported that clients were paying a lot more at-

tion. The counselors also expressed much more enthusiasm about incorporating the maps into their counseling sessions.

Preliminary changes in attitudes and intentions in the intervention group suggest that CAL-PEP's counseling intervention did impact clients in a significantly positive way. Counseling staff has also recognized the importance using a counseling approach that has data supporting its effectiveness. As a result of the findings of this study that presenting data about infection prevalence as hot zone maps and using pictures of STDs increased knowledge and motivated behavior change, CAL-PEP has incorporated them as a regular component of all HIV testing and counseling sessions.

Recommended Best Practice. Where possible, involve staff who will be delivering the counseling intervention in the development of new counseling protocols, and conduct regular trainings and quality assurance meetings to make any needed adjustments to the protocols, share strategies, and ensure adherence to the agreed-upon protocols.

DATA ENTRY PRACTICES

From a research perspective, the building of high-quality data entry and management continued to be problematic throughout the project. CAL-PEP capacity in this area grew to the point at which the quality of data entry improved and files were being regularly backed up. However, there continued to be an issue with timeliness in an agency with limited staffing and competing agency priorities and whose primary mission was service. From a CBO perspective, difficulties arose from the fact that CAL-PEP staff was trained through a previous project to use SPSS for data entry and UCSF's staff was trained in using SAS for analysis. This produced early delays in UCSF creating new data templates; it also resulted in difficulty in CAL-PEP's having access to the processed data in a form that was useful to them.

Recommended Best Practice. Identify CBO staff that already has experience in data management and make their primary responsibility the managing of data and data entry and conduct regular quality assurance checks for accurate entry. From a university perspective, even with trained staff at the CBO, an independent, well-trained data entry staff that can double-enter the data and is free from other CBO demands is optimal.

It also needs to be acknowledged that from both FHOP's (research) and CAL-PEP's (CBO) perspectives, there were many frustrations and barriers in moving more effectively to accomplish the initial research objectives. Originally, a longer term follow-up was part of the study design. Unfortunately, we were unable to complete 1-year follow-up visits for most of our clients. The inability to achieve this goal was the result of a number of factors. These include a high level of staff turnover and reassignment to other projects, difficulties locating and maintaining a clinician, and research priorities running up against the competing priorities of CAL-PEP. In order to effectively fund this project, CAL-PEP combined two other interventions (HIV testing and an STD testing project). This meant competing objectives and requirements that involved balancing resources.

Participating in a community-based collaborative research project such as this, however, offers CBOs opportunities to develop capacity in many areas that grants for providing basic services do not. This includes the opportunity to sit down with academic researchers and think creatively about the knowledge and experiences of both parties and how they can be developed into new interventions. For academic researchers, this type of project provides an opportunity to develop effective ways to commu-

nicate with those who do not have formal research training and to learn to refine protocols and procedures to optimize the effectiveness of and intervention in a particular community and culture.

For CAL-PEP, lessons learned included understanding the value of implementing a broader intervention and the acquisition of increased research capacity for data collection and management. CAL-PEP also became aware of opportunities for third-party billing and the possibility of linking clients to comprehensive medical services. A longer term agenda and a tentative plan have been developed and both partners continue to work together in order to secure resources to continue to bring comprehensive services to the community.

For FHOP, key lessons learned include the importance of creating project time lines with more time allowed for capacity-building activities and initiating new services and refining interventions. In the field there is the need to allot time to meet regularly with line staff to obtain input, as well as designing studies that are simpler, more culturally relevant, and have more of an opportunity to be successful. It is also important that the university partner has a role in the decision process about which staff the CBO assigns to the project. Optimally the university should obtain agreement by the CBO to allow staff to remain with the project throughout its duration.

CONCLUSIONS

The results of this project provide promising evidence that efforts in collaboration and capacity building were effective in both refining an intervention and in bringing project partners to a new level in terms of their ability to both implement an effective clinical and counseling intervention in a community-based setting and also to participate as partners in evaluating the impact of the intervention. The implication of this experience is that CBOs in partnership with universities can play a critical role in delivering evidence based interventions that will make it possible to realize the potential for decreasing the incidence of HIV.

To more effectively build capacity and conduct prevention intervention research within a CBO, it is essential that funders and grant reviewers recognize: (a) the importance of including a pilot phase in which the capacity-building activities within the CBO can precede the implementation of the intervention, (b) That it is often not possible to implement "ideal science" in a community-based setting and is probably not even desirable to do so because it is unlikely that the intervention will then be useful to CBOs or result in the same outcomes when implemented by them, and (c) that these projects require better funding to allow the capacity-building and intervention refinements implied in the first two points. Finally, an ongoing partnership is essential; neither the university nor the CBO could have successfully designed and executed this project without the other. This partnership cannot hope to impact deep-rooted community problems in the time frame of 2 or 4 years. Therefore, a long-term commitment with joint fund-raising efforts is required from both partners.

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