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ABSTRACT

This report addresses the four research objectives that were established by the Massachusetts Primary Prevention Group (MPPG) and the Massachusetts Department of Public Health's HIV/AIDS Bureau. The objectives were to: (1) review and summarize literature that formally evaluated HIV prevention interventions; (2) describe how currently funded HIV/AIDS prevention programs use theoretical models to guide their work; (3) assist the MPPG in developing a clearly articulated set of priorities and plans for future program evaluation work; and (4) review the existing data systems used by Massachusetts to manage prevention contracts and to identify ways in which the system can be improved. There have been relatively few evaluations of HIV/AIDS prevention projects, but the existing literature suggests that effective prevention efforts represent a combination of theoretical models. A survey of 20 Massachusetts prevention programs found rather informal theoretical models guiding programs. Ways to help program planners articulate guiding frameworks more clearly are suggested to enhance future evaluation activities. A review of current data systems revealed no system for collecting data on day-to-day activities in education and prevention. It is recommended that a data form and procedures be developed so that programs can collect useful data efficiently. Appendixes discuss theoretical models for programs, describe the state's programs in chart form, present evaluation forms and a data collection form, summarize an evaluation training component, and present a bibliography. (Contains 103 references.) (SLD)

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HIV/AIDS Prevention Program Evaluation Report

Prepared for:
Massachusetts Primary Prevention Group (MPPG)
&
Massachusetts Department of Public Health
HIV/AIDS Bureau

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UD 031-986

HIV/AIDS Prevention Program Evaluation Report

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EXECUTIVE SUMMARY

This report addresses the four research objectives which were established by the Massachusetts Primary Prevention Group and the Department of Public Health's HIV/AIDS Bureau. The objectives were (1) to review and summarize current published scientific literature which formally evaluated HIV prevention interventions and to identify the theoretical frameworks of programs which have been found to lead to effective reductions in HIV risk behavior across diverse populations, (2) to describe how currently funded HIV/AIDS prevention programs employ theoretical models to guide their work, (3) to assist the MPPG in developing a clearly articulated set of priorities and plans for future evaluation activities at the state level, and (4) to review the existing data systems used by the HIV/AIDS Bureau to manage prevention contracts and identify ways in which the system can be improved and/or used more effectively for program planning.

1. Review and Summary of Published Scientific Literature

HIV/AIDS prevention literature from the first decade of the epidemic was primarily descriptive and included few, if any, formal studies on the outcomes of prevention interventions. Early outcome studies tended not to state the theoretical underpinning of the interventions under study. Over time however, one can discern a distinct trend in the HIV/AIDS prevention literature toward the evaluation of interventions which are based on, explicitly stated, models and theories of prevention derived from social science theory.

A review of the scientific literature suggests that effective prevention efforts represent a combination of selected constructs from various theoretical frameworks and models of behavior change. Some of the most promising theoretical frameworks that appear in the literature are the transtheoretical stages of change Prochaska & DiClemente's (1992), Bandura's (1977) social learning theory, and Rodger's (1983) diffusion of innovation theory. These models consider both individual and social factors of behavior and as such, begin to consider the broader context of risk behaviors. Further, some of these models also consider larger structural social factors that lead to risk and need to be addressed to reduce risk at the individual level. A framework that directly focuses on social change as opposed to individual behavior change is Participatory Education (Freire, 1970; Werner, 1982; Wallerstein, 1992). In contrast to the other models mentioned the goal of Participatory Education, as applied to health education, is change of the root causes of health problems. Individual behavior change is seen a one step toward that goal. Increasingly, discussions of HIV Prevention call for approaches designed to effect social change and the social conditions which contribute to HIV risk behavior Mann, 1991; Amaro, 1995)

2. DPH Funded HIV Prevention Programs in Massachusetts

A survey of 20 Department of Public Health funded HIV/AIDS prevention programs, using qualitative open ended interviews, was conducted to determine: (1) to what extent DPH

funded HIV prevention programs in Massachusetts are informed by theoretical models of behavior change suggested in the literature as the most effective, (2) when programs are informed or have as a foundation and explicit theoretical model, how is the model translated into program components and activities and (3) if the formal models that exist in the literature are not providing the basis for program design and implementation, are the programs able to articulate any other models?

The interview data suggests that few program managers discussed current theory or articulated an explicit theoretical model of prevention. However, in many cases, their practice was imbued with concepts derived from theory and research. In addition, while they may not have named specific frameworks or models, existing theories were expressed implicitly and were clearly reflected in program activities. The few HIV prevention programs based on an explicitly articulated theoretical foundation demonstrated program activities consistent with their stated theory. All of the HIV prevention programs (except one) implicitly and/or explicitly demonstrated program activities consistent with the theories and frameworks suggested as effective in the literature. In addition, the data suggests that programs are guided by principles of prevention practice consistent with CDC and other guidelines for effective prevention as well as by informal alternative models derived from the practitioners's own experience. However, most programs lacked a framework or road map to prevention and as a result there was often a lack of clarity of what risk factors were targeted and the steps in the prevention strategies.

As HIV prevention program staff are in the forefront of prevention practice they are in a position to articulate and quickly test out various aspects of theory and refine and adapt theory to the specific needs and realities of their target communities. Therefore it is recommended that the Massachusetts Primary Prevention Group and the HIV/AIDS Bureau seek technical assistance for agencies to help programs to develop the internal capacity necessary to reflect, conceptualize and better articulate the various theoretical underpinnings of programs and interventions and to translate these into program objectives and activities.

3. Priorities For Future Evaluation Activities

Three recommendations were identified to assist the Department and the MPPG in developing a comprehensive evaluation plan.

(a). The Department currently collects information on AIDS cases and reported STD cases that can be augmented by behavioral epidemiological studies. Such studies would require surveys of representative samples of the population of selected cities. Data on risk behaviors could then be related to measures of prevention activities and allow the Department to track behavioral risk over time in targeted cities in relation to state funded prevention initiatives.

(b). The AIDS Bureau Counseling and Testing Program has a long history in the epidemic and it is one of the most heavily funded program associated with prevention of HIV infection. Counseling and testing also reaches a large number of individuals and is relied on by most programs as a key step in HIV education and prevention. Yet, discussion with DPH staff and our review of the literature reveal little scientific documentation of the relative effectiveness of the various models of counseling used during the process of HIV anti-body testing. Because

of the importance of counseling and testing in the state's program and because of its existing data system we recommend a study to access the effectiveness of different modes of counseling and testing in promoting risk reduction and linkages to other services.

(c). Health educators across the state have expressed the perception that in-home Safety Net Parties are an effective approach to HIV prevention for persons engaging in high risk behavior and for various ethnic and language groups. However, this model has not been formally tested for its effectiveness in the prevention of HIV infection. Furthermore, there is a lack of data on how Safety Net Programs are actually implemented across different sites and possibly a lack of standardization of Safety Net prevention messages. The Bureau has allocated a substantial amount of funding for Safety Net Programs in various communities in the last five years. It is recommended that the Department begin the groundwork to build the readiness of these programs for formal evaluation. This approach would allow for development of a theoretically grounded and programmatically consistent Safety Net Model which could be evaluated.

4. Improvements of Data Systems

A review of current data systems revealed no system for collecting data on day-to-day activities in education and prevention programs. In order to facilitate reporting of data to the Bureau, it is recommended that a data form be adopted for documenting education and prevention contacts. The tool developed as part of the project, would allow the Bureau to capture daily prevention and education program activities as well as to better utilize aggregate data deemed useful at both the agency and Bureau level. It is also recommended that categories for reporting ethnicity be standardized across prevention modalities (counseling and testing, outreach, prevention and education). The Bureau's computer hardware and software systems should also be upgraded to meet to increased demands for computer storage, scanning, quality control and analysis.

I. Scope of Evaluation Project

Four evaluation research objectives, established by the Massachusetts Primary Prevention Group and the Department of Public Health's HIV/AIDS Bureau, are addressed in this report. The research objectives were (1) to review and summarize current published scientific literature which formally evaluated HIV prevention interventions and to identify the theoretical frameworks of programs which have been found to lead to effective reductions in HIV risk behavior across diverse populations, (2) to describe how currently funded HIV/AIDS prevention programs employ theoretical models to guide their work (3) to assist the MPPG in developing a clearly articulated set of priorities and plans for future evaluation activities at the state level, and (4) to review the existing data systems used by the AIDS Bureau to manage prevention contracts and identify ways in which the system can be improved and/or used more effectively for program planning.

II. Summary of HIV Prevention Literature

A. INTRODUCTION

The behavioral research literature on the human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) is extensive. This section of the report reviews the scientific literature on HIV/AIDS prevention efforts. Our purpose is to examine those studies and prevention programs that are based on scientific theory, have an experimental or quasi-experimental design with a controlled evaluation of outcomes, and have suggested some effectiveness in reducing high-risk behavior and preventing further infection.

However as we began to examine the literature we found that surprisingly few HIV prevention programs, especially those described in the first decade of the epidemic, had been informed by scientific theory or had been formally evaluated. Consequently fewer HIV prevention programs that target men who have sex with men (the population primarily affected in the first decade) met the criteria of having been based on scientific theory and experimental or quasi-experimental in design. Due to the limited outcome evaluation literature for this population we have also included summaries of key survey studies (in addition to the available outcome evaluation literature) that were conducted to guide and inform interventions designed to reduce HIV risk behavior in gay and bisexual men.

The paper is organized in the following manner:

The introduction contains a brief overview of the extent of the epidemic, focusing primarily on Massachusetts; a summary of the behavioral research, not linked with particular prevention programs, conducted from 1985 through 1995; a listing of the elements that constitute a scientifically based, controlled study of outcomes in HIV/AIDS prevention; a look at some recent scholarship on what makes for a successful, effective prevention program; and a brief introduction to the behavioral and social science theories that inform AIDS-prevention programs.

In the paper's second section, we review the research studies themselves. We examine first studies of prevention primarily aimed at *high-risk sexual behavior* (studies of sex between men, of commercial sex workers, of adolescent populations, and of heterosexual patients in sexually-transmitted-disease clinics). Then we treat studies of programs primarily aimed at reducing high-risk behavior linked with *injection-drug use* (studies involving risk-reduction training; methadone maintenance; needle-exchange programs; and community-level programs, including those that attempt to reach the sexual partners of injection-drug users).

The paper closes with a discussion of the current gaps in behavioral research and some suggestions for future research.

1. The AIDS Epidemic in Massachusetts

AIDS currently is the number-one health crisis in American society. It is the leading cause of preventable death for Americans between the ages of 25 and 44(CDC, 1994). More than a quarter of a million people have died of AIDS-related complications (CDC, Surveillance

Report, 1995) and an estimated 800,000 to one million Americans are infected with HIV (CDC National AIDS Hotline, 1995).

In Massachusetts, over 10,000 people have been diagnosed with AIDS, (CDC, 1995) 59% of whom have died (Massachusetts Department of Public Health, 1995). As in the country as a whole, AIDS is the leading cause of preventable death for individuals between the ages of 25 and 44, (MDPH, 1994) and is the third leading cause of death for blacks¹ and Latinos in the state. Massachusetts ranks 10th highest in AIDS cases nationally (MMRW, 1994) and Boston ranks 12th among American cities (CDC 1995). Overtime the populations affected by AIDS have changed with an increasing number of injection drug users and women reported. Cases outside the Boston metropolitan area have risen from 33% of the total in 1985 to 48% in 1994. Reflecting similar trends, in 1986 women in Massachusetts accounted for 9% of all cases. By 1994, women accounted for 24% of all AIDS cases¹ (MDPH, 1995).

AIDS continues to devastate several particularly vulnerable populations. Among the alarming trends that have been noted (Coates, 1995) are:

- 1) The continued increase of cases among women of color in their reproductive years. The rate of infection among women is doubling; women account for 30% of all new cases between the ages of 20 and 29.
- 2) A growing number of young adults being diagnosed with AIDS, indicating that they had been infected during adolescence. Fifty percent of new infections are among persons under the age of 25 and 25% among persons under the age of 22.
- 3) A steady increase of cases in the heterosexual population among people, particularly of low income, who do not use injection drugs.
- 4) After a brief period of stabilization, there has been a resurgence of infection among gay and bisexual men and injection-drug users.

As neither a vaccine or cure seems to be in the distant future, effective prevention programs, focused on behavior that reduces risk and minimizes harm, remain the most effective tools in reducing the spread of HIV/AIDS.

2. The First Decade of Behavioral Research

As indicated by a number of researchers (Coates, 1990; Kelly and Murphy, 1993; Kelly et al., 1993; Higgins, 1994; and Choi and Coates, 1994), the gravity of the epidemic and the need to respond quickly to a deadly disease took precedence over the carrying out of carefully controlled, scientifically based, studies of the outcome of prevention strategies. To date, most behavioral research has concentrated on a descriptive understanding of the psychological factors that relate to high-risk behavior (Kelly et. al, 1993, p.1024).

While early studies did not evaluate the impact of approaches to prevention, they were important in examining and defining the risk factors that have an impact on particular

¹The term black is used as a racial category by the CDC and includes African Americans, Haitians, Afro-Caribbeans and other non-Latinos identifying their race as black.

populations. For example, research has contributed to understanding the importance of the context and environment in which certain high-risk behavior occurs, such as the study by Latkin et al. (1994) of places where injection-drug use occurs, or an examination of the type of drugs used by individuals already infected with HIV (Diaz et al., 1994). Research has also examined the importance of the different behavior of men and women, as well as behavioral differences noted in minority populations. An example is the study (Nyamathi et al., 1993) of homeless, drug-addicted, African-American women and Latinas with high and low levels of acculturation. Dwyer et al. (1994) studied the role of gender in the prevention of AIDS and Corby et al. (1991) looked at the risk factors that exist for partners of injection-drug users. Work has also focused on developing useful research instruments: the study by McElrath et al. (1993) examining the reliability of self-reporting (the subject's own description of his or her behavior), an assessment of risk for heterosexuals (Weiss et al., 1993), or the development by Grimley et al. (1993) of an instrument evaluating the stages of behavioral change. The need to develop appropriate prevention literature and programs has been the focus of some research, e.g., the study of an AIDS-education program in a prenatal clinic (Mason et al., 1991), and the development of a brochure for women at high risk (Duke and Omi, 1991). Additionally, research, such as the work of Gielen et al. (1994) has focused on the application of certain theories of health behavior, such as the health-belief model, to the task of enhancing women's ability to take self-protective measures.

Finally, this first decade of HIV/AIDS research created a wealth of knowledge about the epidemiology, the progression of the disease, the psychosocial and mental-health needs of those infected, the impact of the disease on care-givers from the patient's family and social network, and various ethical concerns. (This is a very brief listing of the wide research conducted on HIV/AIDS and does not begin to demonstrate its extent. It is provided merely as an indication of some of the topics studied.)

While behavioral research is seen as essential for primary prevention and useful for secondary prevention (Coates 1990, p.57), there has been little formal research on outcomes that would evaluate the impact and effectiveness of AIDS prevention programs. The studies cited above have been important in that they have helped prevention strategies to become more refined and focused on the specific needs of particular populations. While this early research has suggested several general principles that might be applicable to all populations, it also has underscored the importance of tailoring an intervention to a particular population.

The first ten years of research have been focused primarily on the two groups that were at greatest risk for infection: gay and bisexual men in large metropolitan areas, and injection-drug users and their partners. Some of these early studies of prevention have demonstrated encouraging changes in sexual behavior that have been dramatic and remarkable in scope. These changes also seem to have been maintained over time (Kelly et al., 1993; Choi & Coates, 1994). The early behavioral research has also indicated areas in which intervention may no longer be effective. For example, a person's knowledge about AIDS, which was observed to be a predictor of risk early in the epidemic, is now a less important influence on behavior in most populations (Kelly et al., 1993, p.1224).

As we currently understand it, research emphasizes several key aspects in the prevention of HIV infection. First is the importance of understanding individual behavior. Second is

learning how to influence, support, and sustain behavioral change. And third is learning how to understand and modify social norms so as to encourage behavioral change. The risk for HIV infection comes from very private — and, seemingly, often intractable — behavior. The actions which prevention efforts seek to change are pleasurable and among the most intimate of our behavior. They are difficult to assess, monitor, and influence and they lie at what many people feel to be the core of their identity.

In the past two years, the task of changing behavior has been seen to require attention to information, motivational factors, skills training, and the modification of perceived norms. Kelly et al. (1993) summarizes the research agenda as attending to the following aspects: 1) examining methods that promote change of social and peer norms, particularly emphasizing risk avoidance behavior; 2) promoting the acquisition of cognitive and behavioral skills; 3) developing a heightened sense of personal risk, and; 4) exploring the situational and social factors that interfere with behavioral change (p.1224).

3. The Components of a Scientific Study

Health behavior and its change are complex phenomena, ones that are particularly challenging for researchers to evaluate in controlled studies of outcomes. Researchers must be able to translate abstract, general goals into clearly defined objectives that can be used to establish a specific operational program. An effective study of outcomes must, moreover, be able to measure specified parameters of interest before and after a given intervention. As Valdiserri (1991) has written in a primer on AIDS-prevention research: "The parameters we choose to measure in evaluation prevention programs must coincide with the theoretical and programmatic approaches undertaken to promote behavior change and the impact objectives that reflect this theoretical underpinning" (p. 256).

Prevention programs, undertaken for research purposes, should be by nature complex systems that target a particular audience, have a theoretical basis, and have a clear program design. They need to take into account the program's setting, specify impact objectives, and work within available resources and existing constraints. As much as possible, according to Valdiserri (1991), a prevention-research program should attempt to incorporate the five essential elements of an experimental design:

1. The selection of the sample should be representative of the target population.
- 2) The variables of interest should be measured before the intervention takes place.
- 3) A control group — a group of people similar to those in the program sample, but not exposed to the intervention — or exposed to another intervention, should be established for comparison.
- 4) Individuals should be randomly assigned to either the intervention or the control group in order to insure the comparability of the two groups.
- 5) There should be one or more post-intervention measurements of the variables of interest after the intervention (p. 259).

The importance of these five criteria cannot be underestimated. Each contributes to the validity of a study's findings. They help to determine the ability of a given study to determine that the changes observed are due to the intervention rather than some other factor.

The ability to meet all of these criteria can be problematic. Issues like the availability of a sample, conditions that do not allow for a control group, and ethical concerns will affect the formulation of a prevention-research program. In some circumstances it is impossible to set up random assignment — given the severity of the consequences, the idea of withholding a treatment or intervention from some people may be morally unacceptable to many service providers. This situation calls for a design that compares different intervention strategies, rather than barring some subjects from possible assistance. As much as possible, however, scientifically valid prevention-research programs need to adhere to the five elements of the experimental model.

4. Effective Prevention Programs

In a recent article, Holtgrave, Guinan & Curren (currently in press) emphasized the principles of effective, behaviorally based interventions. They noted that effective programs reflect the following principles:

- 1) Effective behavioral interventions are based on real, specific, community-identified needs. This calls for close collaboration with community-based providers and researchers.
- 2) Effective interventions are culturally appropriate.
- 3) Effective programs have clearly defined audiences, objectives, and interventions.
- 4) These programs are based on sound behavioral and social science theory.
- 5) Effective programs have quality monitoring throughout the intervention so as to adapt the intervention as needed.
- 6) Finally, sufficient resources are needed in order to be able to implement the intervention.

In the 1995 Behavioral Research and Evaluation Program Targeting Communities of Color, A Dissemination Conference on Key Findings, for the Prevention of HIV Disease, sponsored by the Centers for Disease Control and Prevention, Dr. Thomas Coates, renowned prevention researcher, stressed that no prevention program is 100% effective or perfect. The findings of prevention-research programs must be considered in terms of what might occur in the absence of a prevention program. Current thought seems to consider “one treatment, one cure” as the index of an effective program, however, for prevention that involves complex behavioral and social factors, this is an inappropriate standard.

5. The Theoretical Underpinnings of Successful Prevention

A number of theories from the behavioral and social sciences can usefully increase the effectiveness of HIV-prevention efforts. A sound theoretical framework helps avoid the pitfalls of an overly intuitive application of health-education concepts. It is important that notions implicit in the plans of providers be made explicit, in order to test the accuracy of their

assumptions and avoid costly mistakes. Finally, studying past failures in the application of health-education principles can help avoid the needless waste of money and lives.

Behavioral theories have been used to provide explanations for high-risk behavior and to understand how behavior change can be supported. To be effective, prevention programs need to synthesize elements from various theoretical models (Kelly and Murphy, 1993; Kelly et al., 1993; and Choi and Coates, 1994). This synthesis should address the multiple characteristics of behavior that puts people at risk of infection, the causes of such behavior, and potentially effective and appropriate interventions to prevent such behavior or lessen its consequences.

In a seminal article, Kelly et al. (1993) analyzed AIDS-prevention programs to date and suggested three theoretically based approaches that have demonstrated initial promise. The first approach emphasizes cognitive-behavioral interventions that teach and encourage the use of individual cognitive, social, and self-management skills to change high-risk behavior. These include interventions based on social learning theory, and theories that include elements of risk education and the enhancement of an individual's accurate appraisal of personal vulnerability.

The second set of interventions focus on social and peer norms, which are an important determinant in effecting change. The emphasis is on groups, communities, and populations, and the goal is to develop and/or support group values and beliefs that discourage risk-taking behavior and promote the social acceptability of avoiding risk. This involves the identifying of opinion leaders within a community who will promote changes in social norms.

The final approach suggested by Kelly and colleagues emphasizes a multifaceted community mobilization strategy that combines use of the mass media, marketing techniques, and community activism and empowerment to bring about changes in behavior and policy.

Regardless of the theoretical basis guiding a prevention approach, it is well agreed upon that in order to change behavior effectively, interventions must be continuing and repetitive and be assessable to all members of a community. For a brief overview of the behavioral theories discussed to throughout this report see Appendix A. Theoretical Models.

B. THE PREVENTION OF HIGH RISK SEXUAL BEHAVIOR

1. Men Who Have Sex with Men

Gay communities have made tremendous strides in promoting full-scale risk reduction and have brought about sweeping changes in social norms and attitudes related to behavioral practices. In response to the crisis that HIV infection and AIDS brought to large urban centers in the early 1980s, the gay leadership took on the task of developing and implementing a wide variety of prevention programs targeted specifically at those individuals who were at greatest risk for contracting or spreading the virus. These early interventions sought to provide accurate information on the modes of viral transmission and on high-risk sexual practices.

Programs grew in content and intensity, and before the end of the decade the gay community had brought together multifaceted, community-oriented programs that provided for the "information, skills training, and motivational factors required to bring about effective risk reduction and changes in social and peer norms" (Coates, 1990, p. 60). Researchers agree that

this community mobilization, which offered training, education, and the wide-scale distribution and diffusion of risk-reduction information, significantly curtailed the spread of HIV infection in the gay community (Ehrhardt, 1990).

However, these programs were shown to be effective in large urban centers — or in AIDS epicenters — with gay men who were white, well-educated, and seemingly responsive to prevention initiatives. Researchers noted that "there remains a serious concern and tremendous need to study the determinants and modification of high-risk sexual behavior in young gay and bisexual men...and more specifically young black and Hispanic men, who may not self-identify as being gay, and remain at high risk for contracting the virus" (Coates, 1990, p. 58).

The following is a brief summary of the various interventions most often used in programs targeting gay and bisexual men.

1.1. Individual-level prevention programs

Basic health and education techniques were first implemented in the early 1980s when the top priority was quickly disseminating information on modes of HIV transmission and high-risk behavior (Kelly & Murphy, 1992). In 1985 HIV-antibody testing became available, and many health-care establishments, worksites, and treatment centers for sexually transmitted diseases (STD) offered counseling-and-testing (C&T) interventions. Both peer-led and professionally led programs were begun, which paid specific attention to providing clients of these institutions with information on how HIV was transmitted and how to avoid infection with the virus.

Testing for HIV infection in the US is done for several different reasons: "to promote behavior change, to provide entry into clinical care, to provide a starting point for partner notification and education, and to protect the blood supply" (Otten, Zaidi, Wroten, Witte, & Peterman, 1993, p. 529). Counseling, both before and after HIV-antibody testing, is the key component of the C&T type of one-on-one, testing-linked, intervention strategy. Discussion during pretest sessions focuses on providing information about HIV transmission and risk-reduction techniques. In addition, each individual's behavioral history is assessed. Post-test sessions provide for necessary referrals, when applicable, and for further education in risk reduction.

Although C&T is the most common one-on-one intervention, formal evaluation of this type of program, as well as of other individual-level interventions, specific to the gay population, is limited. Higgins et al. (1991) describe various longitudinal and cross-sectional studies which do offer an existing data base on sexual behavior. However, it is important to note that these data do not provide empirical evidence on the effectiveness of C&T in reducing high-risk behavior or on its effectiveness in linking counseled subjects with HIV-related services. Rather, the data provide descriptive information on the characteristics of the virus. It furnishes a "snapshot" of the health experience (serologic status) of this particular population at a specific moment in time (Hennekens & Buring, 1987).

In the 1980s, research studies on the association between knowledge of serologic status and behavioral risk reduction were conducted. Two of the larger studies, one conducted in San Francisco and the other in Amsterdam, are of particular interest. The San Francisco study classified men by their serologic status and their knowledge of that status, and attempted to

identify any behavioral differences among the various subgroups. Investigators compared longitudinal data, compiled before the development of HIV-antibody testing in 1984 and 1985, with additional data collected after the licensing of HIV-testing, in 1986 and 1987. Statistically significant associations were made between a man's knowledge of his serologic status and his likelihood of practicing high-risk behaviors. The initial findings suggested that men who were aware of their HIV-positive status were far less likely to practice unsafe sex than men who were either seronegative or who had not been tested (Higgins et al., 1991). However, in 1991 supplemental analysis was conducted using this same data and researchers noted that while, "such comparisons identified behavioral differences between groups at a given moment, they did not evaluate whether these differences increased, decreased or stayed the same from one time to the next" (Higgins et al., 1991, p. 2427). This reanalysis strongly suggested that "reductions in risk-taking behaviors in the tested groups were often paralleled by decreases in risk-taking in the untested group, and that C&T interventions may not be solely responsible for the behavioral changes that occurred in particular community" (Higgins et al., 1991 p. 2427). The researchers asserted that the changes could, in fact, be due — not to counseling and testing — but to the greater knowledge about HIV and AIDS-related issues that existed in the community because of the mass educational efforts that were already underway.

The Amsterdam study summarized the rates of unprotected, receptive anal intercourse (RAI) among men with steady and unsteady partners, who were either seronegative or untested, for three consecutive six-month periods from July, 1985 through December, 1986. Based on the data acquired from this study researchers initially concluded that C&T did, in fact, have an "impact on identified behavioral differences among groups. Yet, more recent analysis of this same data suggests these results were not statistically significant to draw conclusions about the overall impact of C&T on behavioral modification" (Higgins et al., 1991, p. 2428). This reanalysis actually showed that untested men who were without steady partners during the second phase of the study changed their behavior more than tested men, and that the differences in behavior between tested and untested men practicing unprotected RAI with steady partners were not statistically significant (Higgins et al., 1991).

Researchers also warn that all studies focusing on C&T "rely on voluntary testing, and associations between risk reduction and C&T may be confounded by factors related to the decision to be tested and to the decision to return for the result" (Higgins et al., 1991, p. 2427). In short, although these one-on-one services may be effective with high-risk populations, such as hard-to-reach gay or bisexual men, or with those men who present to STD clinics or urban health clinics², the true effectiveness of counseling and testing, as a preventive measure for the population of gay and bisexual men, remains "unclear" (Higgins et al., 1991, 2427)

1.2. Group-level prevention programs

Small-group interventions, led either by peers or professionals, that include skill-building and assertiveness- training exercises, group lectures on HIV transmission and the clinical manifestations of HIV, and presentations aimed at eroticizing safer sex practices have proven

successful in decreasing the number of sexual partners and the incidence of unprotected anal intercourse (Kelly and Murphy, 1992).

A study evaluating two AIDS risk-reduction programs targeted at gay and bisexual men was conducted in the Pittsburgh area in 1986 (Valdiserri et al., 1989). The purpose of the investigation was to compare the effects on sexual behavior of an educational intervention program based on social learning theory which incorporated skills training and small-group lectures, with a program that consisted of only a small-group lecture. Changes in behavior were measured by the subjects' own description — so-called "self-reporting" — of their sexual practices (insertive and receptive anal intercourse) and their use of condoms during anal intercourse, at 6-month and 12-month follow-up.

Study participants were recruited from the Pitt Men's Study (PMS), (the Pittsburgh component of the Multi center AIDS Cohort Study) and by a multimedia effort that used fliers, letters to homosexual-community and social organizations, poster campaigns, and advertisements in local newspapers. In addition, outreach efforts were made to male commercial sex workers.

The program consisted of two components. Intervention I provided one small-group lecture only, which addressed the "transmission and pathology of HIV infection, clinical manifestations and outcomes of HIV infection, the relative risks of infection for specific sexual practices, the importance of reducing risk through the practice of 'safer sex', the proper way to use condoms, and interpretation of HIV antibody testing. The intervention was delivered by a gay health educator and lasted 60-90 minutes" (Valdiserri et al., 1989, p. 21).

Intervention II was delivered in two parts. The first was the Intervention I lecture. The second component incorporated a variety of psychotherapeutic techniques, including "role-playing, psychodrama, and group process: to promote the social acceptability of 'safer sex'; to teach men who were engaging in high risk sexual behaviors adaptation strategies which would enable them to modify their sexual behaviors; and to explore the non-libidinous functions of sexuality for homosexual men" (Valdiserri et al., 1989, p. 22). Intervention II took place in one session, led by a psychotherapist from a community organization that specialized in treating sexual minorities, and lasted 140 minutes. A control group was not included in this study because the fundamental purpose of the research was to compare educational strategies, rather than measuring the overall effectiveness of either intervention.

Between March 1986 and March 1987, 584 participants were randomly assigned to one of the two interventions. Sessions were scheduled during daytime, evening, and weekend hours. Of the study's subjects, 265 were assigned to 45 Intervention I sessions and 319 to 39 Intervention II sessions.

The researchers reported that their study documents the "overall decrease in the magnitude of sexual activity among homosexual men in response to AIDS" and suggests that those who were exposed to skills training in Intervention II used condoms with more partners for insertive intercourse, and condom use increased by 44% between pre-test and second follow-up compared with only 11% on average in sessions which did not provide such training" (Valdiserri et al., 1989, p. 24).

The study's findings also suggest that interventions "which teach men how to negotiate safer sex encounters, and to rehearse these imaginary encounters can result in benefits which are beyond the mere dissemination of information" (Valdiserri et al., 1989, p.25). However, it is

important to note that while the use of condoms for insertive anal intercourse did increase among participants who received Intervention II or skills training, little change was noted in the incidence of condom use by men who were the receptive partner in anal intercourse. This finding may be due to the fact that "men are more comfortable asserting themselves if they are the insertive partner and the ability of the receptive partner to assert himself may require more intensive intervention" (Valdiserri et al., 1989, p. 25).

In a study conducted in 1989, 104 gay men were recruited and randomly assigned to either the experimental intervention or to a wait-listed control group. The purpose of the study was to evaluate an intervention targeted at men who had past histories of high-risk behavior. The intervention, based on social learning theory, consisted of 12, 60-to-90 minute, small-group sessions, in which participants in the experimental group were provided with AIDS-risk education, cognitive-behavioral self-management training tailored to situations that were associated with risky behavior, and assertiveness training (helping subjects refuse requests or coercion to engage in high-risk practices). The sessions also paid attention to issues of health consciousness, pride, and perceived efficacy — increasing the subjects' sense that their own changes in behavior could effectively reduce their risk of contracting the virus (Kelly, St. Lawrence, Hood, and Brashfield, 1989).

At follow-up, four months after the intervention, the experimental group reported an average of 0.2 episodes of unprotected anal intercourse in the previous month (compared with 1.2 at baseline), and reported using condoms in 70% of the occasions of intercourse in the previous month, compared with 40% at baseline. In contrast, the control group reported a mean of 1.2 episodes of unprotected anal intercourse, compared with 0.9 at baseline. The control group reported a 20% rate of condom use in the month preceding follow-up and a 32% rate in the month before baseline.

The researchers believe their findings strongly support the efficacy of a behaviorally based skill-training intervention in helping individuals change their practices to reduce their risk of AIDS. However, the investigators identified the length of the intervention program as a major limitation to its wide-scale implementation and suggested that "the 12 week duration of this intervention entailing about 18 hours of group contact may be impractical in many applied settings...as it may be difficult to engage a person in an intervention for this length of time" (Kelly et al., 1989, p. 26).

To explore this issue, the same investigators conducted a preliminary follow-up study to determine if a shortened version of this particular intervention would help individuals develop the skills needed to modify high-risk behavior. They concluded, despite the relatively small sample size (17), that a shorter intervention had potential and that the study "serves to substantiate the effectiveness of behavioral approaches based on social learning principles" (Kelly et al., 1990, p. 34).

Another study, also conducted in 1989, evaluated the impact of stress-management training on sexual behavior and immune function. The study was designed to test the notion that "group stress training will lead to improvement in immune function and reduction in unsafe sex" (Coates, McKusick, Kuno, and Stites, 1989, p. 85). A sample of 64 gay men infected with HIV were randomly assigned to either an experimental group or a wait-listed control group. The

underlying behavioral theory was not stated by the authors, however, the intervention was consistent with the principles of social learning theory.

These volunteers were recruited after a newspaper article appeared in a San Francisco gay newspaper. The intervention consisted of two-hour sessions, once a week for eight weeks, with a one-day retreat after the fourth week. Participants were given instruction on: "1) systematic relaxation techniques through the use of group time and or take home tapes; 2) health habit change promotion by creating contracts focusing on diet, rest, exercise, drug and alcohol use and smoking; and 3) skills to manage stress through discussion, teaching and modeling" (Coates et al., 1989, p. 885). Immunological evaluation was conducted by laboratory testing of mechanisms such as "natural killer cell function, lymphocyte response to Concanavalin A (ConA), Candida antigen, Cytomegalovirus (CMV), and Immunoglobulin A (IgA)" (Coates et al., 1989, p. 885).

The investigators found that, at follow-up, the subjects who received the intervention reported that they had significantly fewer sex partners in the previous month than did the control group (1.10 versus 2.29). However, there were no differences between the groups with regards to lymphocyte numbers and function. Immune function, therefore, may not be influenced by stress or by stress-reduction training in the presence of HIV infection (Coates et al., 1989). Or immune function responses may take longer to develop than was allowed before follow up measures were taken.

Many of the above-mentioned interventions were developed and initiated in the early stages of the epidemic when health education and the dissemination of information were the greatest concerns. As a result, most were implemented without much attention to theoretical frameworks or program evaluation (Kelly and Murphy, 1992). However, more recent literature details the implicit theoretical background of such group interventions, classifying them as "cognitive-behavioral or skills training approaches" that involve "face to face contact with groups or individuals, or diffusion of innovation approaches" (Kelly and Murphy, 1992).

1.3. Community-level interventions

Coates (1990) contends that community-level interventions, which are based on the assumption that prevention activities should take place simultaneously and be delivered to entire communities, are the most effective kind. These initiatives use professionals and local community members to provide people with skills training, information, and increased access to widely focused medical and support services, by helping them develop social support systems that promote healthful behavior (Coates, 1990).

Community-level interventions are usually based on diffusion-of-innovation and social-influence principles and often are accompanied by "educational material dissemination, condom, bleach, and clean needle distribution or exchange, and encouragement of HIV antibody testing" (Kelly and Murphy, 1992, p. 578).

Several studies have been conducted evaluating these community-level interventions. One study in particular points out the effectiveness of this type of program. The study, conducted in 1991, trained bartenders in gay bars to observe crowd members and determine which individuals

seemed most popular within the group. Once the opinion leaders — or trend setters — were identified, they were given instruction, in four weekly 90-minute sessions, on: "1) correcting misconceptions concerning AIDS risk; 2) recommendations for implementing risk reduction strategies; 3) personally endorsing the benefits and importance and social acceptability of making precautionary behavioral changes" (Kelly et al., 1991, p. 1484).

The purpose of this study was to evaluate the feasibility of a community-level intervention, based on diffusion-of-innovation and social-influence principles, and targeted at homosexual men in smaller cities, where high-risk behavioral practices remain frequent (Kelly et al., 1991). The study was conducted in Biloxi and Hallieburg, Mississippi, and Monroe, Louisiana. These cities were chosen because they were "small, separated by 60 miles and each city had one or 2 gay bars" (Kelly et al., 1991, p. 168).

Researchers compiled baseline data on AIDS-risk characteristics from men who frequented the bars on three consecutive nights. Men who completed the questionnaire on one night did not do so on subsequent nights. The researchers assessed the men's knowledge about high-risk behavior and the perceived social norms concerning the following of safer-sex precautions.

One city, Biloxi, was chosen to receive the intervention while the other two served as comparisons. The comparison cities received no specific intervention, although AIDS-prevention posters and brochures were disseminated in gay clubs. A three-stage process was initiated in the intervention city to identify (done by the bartenders in a week of observation), train, and contract with popular opinion leaders in the gay community. Some 82 opinion leaders were initially identified; of these, 36 received multiple nominations. Of that group of 36, 22 were located and asked to participate in the intervention and bring a friend whom they considered popular. The final group consisted of 39 men and 4 women; 91% were white and 9% African-American or Hispanic.

The weekly group sessions were led by one male and one female. "Opinion leaders were given in session one information on HIV epidemiology, high risk behaviors, precautionary changes needed to reduce risk and misconceptions concerning risk. They were also given training on how to implement risk reduction practices such as: keeping condoms available, avoiding excessive intoxicant use before sex, discussing precautions in advance with partners and resisting coercion to engage in high risk practices" (Kelly et al., 1991, p. 169).

In the second session, the opinion leaders were taught about health promotion, sensitizing others to the threat of AIDS, and promoting behavior change through risk reduction. In session three, the group used modeling and role-playing techniques to demonstrate and practice the skills they had gained in the first two sessions. The fourth, and final, session provided for 'real life' conversations, and allowed group members to solve problems in these exercises and to propose strategies that may have emerged from the 'real life' discussion.

Posters were created with red, yellow, and green circles and were placed in gay clubs. Each opinion leader wore a button replicating the same multicolor logo. This attention-getting device was used to stimulate peer conversation.

Surveys were conducted in all three cities, three months and six months after the intervention. A total of 659 surveys were completed before the intervention, 328 in the intervention city and 331 in the comparison cities. After the intervention, 278 surveys were

conducted in Biloxi and 330 in the comparison cities. A telephone call was made to the trained opinion leaders several months after the intervention to encourage them to continue with their peer education efforts.

The researchers concluded that the intervention produced consistent reductions in the mean percentage of men who practiced high-risk behavior (Kelly et al., 1991). The proportion of men who engaged in unprotected anal intercourse decreased by 30% from baseline in the intervention city. A less noticeable change was found in the comparison cities. In the intervention city there was an increase in the proportion of occasions of anal intercourse in which condoms were used. The intervention also produced a decrease in the proportion of men who reported having multiple sexual partners in the two months preceding the survey. This decrease was not found in the comparison cities. Researchers noted "the importance of social influence as a determinant of population risk behavior patterns and found that men who successfully implemented risk reductions report greater peer support for behavior change than their unsuccessful counterparts" (Kelly et al., 1991, p. 168).

Kelly, Winett, and Riffman (1992) cited in Choi & Coates (1994) reported the findings of another study evaluating a community-level intervention, which used trained opinion leaders. Three experimental cities and three matched control sites were chosen. A total of 701 gay men were surveyed before and after the intervention. Peer conversations were conducted by opinion leaders who addressed the "benefits and appropriateness of risk behavior change, strategies to implement change, and risk misconceptions at local gay bars" (Choi and Coates, 1994). The intervention was based on diffusion-of-innovation principles.

The researchers contended that the intervention led to a decrease in the proportion of men who engaged in any unprotected anal sex, from 33% at baseline to 25% at a nine-month follow-up. The proportion practicing unprotected insertive anal intercourse decreased from 27% to 17% and that practicing unprotected receptive anal intercourse from 22% to 16% (Choi and Coates, 1994).

In a 1993 study, a community received a peer-designed and peer-run, community-based, HIV-risk-reduction intervention that lasted eight months. Another city, wait-listed for the program, was used as a control. The intervention consisted of: both formal and informal outreach initiatives in places frequented by gay men and at social events, distribution of safer sex promotional materials, and a one session, 3 hour safe sex workshop which focused on teaching teams of gay men outreach skills (Choi and Coates, 1994). Although the theoretical framework on which the intervention was based was not stated components of it are consistent with diffusion-of-innovation theory.

The study found that "fewer than 5% in the experimental community practiced unprotected anal intercourse after the intervention, from 40% to 31% relative to those in the control community, from 39% to 40%. Higher proportions of high risk-taking men in the intervention community were reached via formal and informal outreach and social activities than by the safer-sex workshops alone" (Choi and Coates, 1994, p. 1373).

The results of these studies indicate that the frequency of high-risk behavior was significantly decreased among community members when key opinion leaders disseminated educational information and supported or endorsed innovations that redefined social norms or acceptable sex practices (Kelly et al., 1991).

1.4. The second wave of the epidemic

Research has shown that young men, young black and Hispanic men, and men who do not identify themselves as gay (particularly outside the epicenters of the epidemic) can be classified as at critically high risk for contracting HIV. As a result, prevention efforts ought to be redirected and re-targeted, for a variety of reasons.

The research literature shows that most prevention programs designed to reduce sexual transmission of HIV emphasize the adoption of safer sex techniques. However, researchers contend that it is more difficult to maintain health-motivated risk-reduction practices than it is to initiate them (Stall, Ekstrand, Pollack, McKusick, and Coates, 1990).

Data presented in 1990, from a five-year prospective study, showed that the vast majority of gay men resident in San Francisco had made efforts toward safer sex practice, but that "relapse from such safe sex practices has become the predominant kind of high-risk behavior" (Stall et al., 1990, p. 1181). There were 397 men involved in this study. Data obtained from survey responses was scaled into four categories: those men at no risk, low risk, modified high risk, and high risk. Researchers used certain independent variables to predict relapse. These variables were: "age, closetedness, knowledge of AIDS health guidelines, personal efficacy, perceived susceptibility to AIDS, lifetime diagnoses of sexually transmitted disease, sexual partners diagnosed with AIDS, depression, preference for unprotected anal intercourse, and anxiety" (Stall et al., 1990, p. 1182).

The study had two purposes. The first was to "determine why a small minority of gay men in San Francisco continued to engage in high risk practices and second was to describe the retrospective reasons that gay men gave for relapse from safer sex" (Stall et al., 1990, p. 1183). The study's findings suggested that the pattern of relapse was eight times more likely to occur over time than that of consistent high-risk sex, with 2.3% of the sample reporting high-risk sex and 19.0% reporting relapse. Relationship status was associated with the incidence of unprotected intercourse in the year before the study. Mutually monogamous men, for instance, had unprotected intercourse at least once during the year prior to the survey (50.4%), while 36.7% of the men in non-monogamous relationships and 36.4% of the men who did not have primary relationships had unprotected sex at least once in the same period.

Respondents were asked to report on any reasons they felt were important to their participation in unprotected anal intercourse. They were given a list of approximately 11 reasons as a sample. This list included: having a good-looking partner, stress, having a partner claim HIV-antibody negativity, being sad or upset, being afraid that a partner might leave unless the respondent agreed to unprotected anal intercourse, or being turned on (Stall et al., 1990). In addition to the listed ones, several other reasons were reported by respondents: "unavailability of condoms at the time that sex occurred, the combination of alcohol or drugs with sexual activity, sexual arousal, having the same HIV antibody status, and being in love" (Stall et al., 1990, p. 1185).

These findings suggest that more "men in monogamous relationships report having unprotected sex as a result of being in love and having the same HIV status than men without primary relationships. Men without a primary relationship are more likely to report having unprotected sex as a result of being sexually aroused or due to the combination of sex and

alcohol or drug use or lack of condoms at the time sex occurred than men in monogamous relationships" (Stall et al., 1990, p. 1185).

Thus, these researchers recommended that program planners who seek to develop HIV-prevention initiatives take into consideration the predictors of relapse and suggest that "the current challenge may be to determine both the proper mix of techniques that encourage adoption of safer sex and techniques that encourage continued adherence to safer sex" (Stall et al., 1990, p. 1186).

Young men, according to Hays, Kegeles, and Coates (1990), are significantly more likely to engage in unprotected anal intercourse, and to do so with more partners, than are older men. In a study conducted in three medium-sized West Coast cities (Santa Cruz and Santa Barbara, California, and Eugene, Oregon), researchers attempted to identify factors associated with HIV-risk-taking among gay men from 18 to 25 years of age.

Approximately 243 "self-report" questionnaires were distributed to men who left places identified by local gay leaders as frequented by young gay men: gay bars, adult bookstores, gay student-union events, public parks, and beaches (Hays et al., 1990).

The survey instrument was designed to assess sexual behavior, attitudes related to HIV, and reasons for sexual risk-taking. A total of 99 surveys were returned and the study found that there was evidence of a higher rate of sexual risk-taking among younger gay men and that certain identifiable factors were associated with the young men who engaged in high-risk behavior (Hays et al., 1990).

Five specific areas were identified in which the young men at higher risk differed from others in relation to unprotected intercourse: "1) they reported greater enjoyment of unprotected anal intercourse, 2) perceived less risk of unprotected anal intercourse, 3) labeled themselves as more at risk for AIDS, 4) reported poorer communication skills with sexual partners, and 5) were more likely to have a boyfriend or lover" (Hays et al., 1990, p. 905). These respondents also believed that the "chances of acquiring HIV from unprotected anal intercourse with young gay men to be significantly less than with older gay men" (Hays et al., 1990, p. 904).

Age, according to the investigators, was the single factor most consistently associated with increases in unsafe sex practices. The men currently in this age group (18–25) are different from the previous generation of gay men in that most of them began their sexual careers in an era when information and educational materials about HIV/AIDS were commonplace. The messages sent to older gay men may not be appropriate for this particular generation (Hays et al., 1990). Moreover, many young men may have less sense of perceived risk because they may not have known someone — or had a partner — who has died of AIDS-related complications (Hays et al., 1990).

These findings are of particular importance for program developers who seek to implement interventions that target this particular segment of the gay community. Over the past decade rates of HIV infection have significantly declined. However, researchers agree that "this decline has not been enough to prevent a significant proportion of the next generation of young gay men from becoming infected" (Osmond et al., 1994, p. 1937). Program planners, it seems, must devise interventions that: 1) reduce the perception that safer sex practices are only of concern to older men, 2) increase knowledge about HIV/AIDS and the information base on safer-sex guidelines, 3) devise effective HIV risk-reduction programs for young gay men that

eroticize safer-sex practices, and 4) provide training in the communication skills necessary for negotiating safer-sex practices (Hays et al., 1990).

There is a distinct lack of program evaluation literature on HIV prevention approaches for African American and Latino gay men. The limited studies that have been conducted are descriptive studies of factors associated with HIV risk behavior in African American and Latino gay men and as such may be useful in informing prevention efforts targeted to these communities.

African-American men who are gay or bisexual are at a higher risk for contracting the virus than are white gay men. Peterson et al. (1992) conducted a study of 250 gay and bisexual African-American males from November 1988 through September 1990. The purpose of the study was to examine high-risk sexual behavior and condom use among this population residing in San Francisco, Berkeley, and Oakland, California. The participants were recruited from various gay clubs and bathhouses and through newspaper advertisements and outreach and health clinics. The respondents were interviewed by trained, gay or bisexual, African-American male interviewers, and were asked to report on the following: "sexual and drug using behaviors, HIV status, AIDS information, psychosocial variables, (such as social support, help seeking, perceived risk, etc.), and attitudes about condom use" (Peterson et al., 1992, p. 1491).

The study's findings suggested that these men "reported a higher prevalence of unprotected anal intercourse during the past 6 months (52%) in 1990, than did gay or bisexual white men in the AIDS Behavioral Research Project (15%), and the San Francisco Men's Health Study (20%) in 1988, and further, were more likely to have practiced unprotected anal sex if they were low income, had been paid for sex, and or had injected drugs" (Peterson et al., 1992, p. 1493). The study found that subjects accurately perceived themselves to be at risk. The researchers therefore suggested that this population would benefit from programs that eroticize safer sexual practices and increase the perception that condoms can prevent disease, and from programs that are geared toward recruitment, address the uncertainty and uncomfortableness associated with the public disclosure of homosexuality, and involve active street outreach and intercept techniques (Peterson et al., 1992).

Though there have been very few evaluation studies of HIV/AIDS prevention efforts targeted to Hispanic gay males, limited existing data does suggest that significant cultural and socio-environmental norms in this group have serious implications for HIV-prevention efforts. In a study of Mexican and Mexican-American gay and bisexual men, in Juarez, Mexico and El Paso, Texas, researchers found that "these individuals were knowledgeable about AIDS, gay males are more likely than bisexuals to engage in receptive anal and oral intercourse, individuals who meet sexual partners in streets and settings other than bars and discos are at higher risk of infection than those who meet partners in bars or discos (because they have more sexual partners), older individuals are at a higher risk than younger individuals because they are less likely to use condoms, and individuals who have more sexual partners are using condoms less often than individuals with fewer sexual partners" (Ramirez, Suarez, de la Rosa, Castro, and Zimmerman, 1994, p. 171).

Two hundred subjects were recruited for the study. One-hundred-thirty-three (66%) were gay; 58 (29%) were bisexuals; and 5 (2%) were transvestites. The variables analyzed were: "sexual identity, formal education, occupation, meeting places, attitudes toward condom use,

reasons for non use of condoms and difficulties in using condoms" (Ramirez et al., 1994, p. 166). Participants were interviewed by trained gay male interviewers and asked a series of questions which were designed to elicit information pertaining to the variables under study.

The results indicated that knowledge about HIV and AIDS did not necessarily prevent subjects from engaging in high-risk behavior nor did it necessarily generate safer sexual practices in some segments of this population (Ramirez et al., 1994). For instance, blue collar or factory workers, older respondents, and those with negative attitudes toward condoms were more likely to engage in high-risk behavior than were other respondents. These researchers also noted that program planners who attempt to address the issues that arise in this particular segment of the gay community must "take into account the socio-cultural environment in which these men live. Homosexuality is still not an accepted practice in Mexican society and those who are gay are often unwilling to confront societal attitudes and prejudiced behaviors" (Ramirez et al., 1994, p. 174). Prevention efforts which incorporate peer education and small-group sessions may thus be more effective than community-level efforts (Ramirez et al., 1994).

2. Commercial Sex Workers

Public health officials, health educators, and care providers have developed and implemented a wide variety of programs that encourage and promote individual behavior change among commercial sex workers (CSW's) and their clients. However, only a few of these programs have been formally evaluated. The difficulties that arise when attempting to evaluate interventions such as these are due to a variety of factors: "the logistics of conducting prospective cohort studies among CSW, who are often highly mobile and reluctant to provide names, addresses or other identifying information that would permit follow-up; the challenge of validating self-reported condom use; the lack of adequate comparison groups; the difficulty of measuring and accounting for confounders such as exposure to other non-targeted intervention programs; and difficulties in measuring exposure to the targeted intervention" (Asamoah-Adu, Weir, Pappoe, Kanlisi, Neequaye, and Lamptey, 1994). Evaluation is also hindered by the severe economic and educational disadvantage often associated with this population, and by the tendency of the group to practice illegal behavior and drug use (Dorfman, Derish, and Cohen, 1992). Commercial sex workers have been classified as hard to reach, or as a "hidden" population, and would benefit from program initiatives that are carefully designed and incorporate active street outreach, educational workshops on AIDS, and referral for drug-abuse treatment (Dorfman et al., 1992). Further, sex workers, it seems, "are reluctant to respond to public health authorities..., and would more readily accept education from peers..." (Dorfman et al., 1992, p. 26).

2.1. Individual-level prevention programs

The existing review literature suggests that only three studies have evaluated the efficacy of HIV counseling and testing among commercial sex workers. The authors of these studies did not cite any one particular behavioral theory underlying the interventions, but many of the specific components of the following initiatives are consistent with the health-belief model.

In 1988, a prospective study of Kenyan female sex workers reported an increase in the proportion of sexual encounters in which condoms were used, among those who received

counseling and testing about HIV along with AIDS education. Surveys were conducted, before and after testing, to measure the frequency of self-reported condom use. The authors stated that their study was based on a primary-health-care framework. The purpose of the study was to describe the effects on the study population of an AIDS-education program, the distribution of free condoms, and condom use (Ngugi et al., 1988).

A group of 366 women were randomly assigned to one of two experimental groups or to a control group. Group I (94 women), received AIDS education at general community meetings (called *barazas* in Swahili) or individual counseling sessions, before learning the results of their HIV-antibody tests. All the women in this group were given condoms. The group intervention consisted of lectures on AIDS, sexually transmitted diseases, and reproductive health; role-playing by the sex workers; and open discussion. Women were individually counseled for 15 to 30 minutes on HIV and AIDS. HIV-antibody test results were given out when they became available and certain messages were reinforced: the sex-worker population had a high HIV-infection rate; those with HIV would likely transmit the virus to their clients; frequent infections with STDs might contribute to the development of AIDS; the best course of action was to cease commercial sex work; and the only alternative to cessation was for sex workers to insist that all of their clients use condoms (Ngugi et al., 1988). Group II (67 women) received only the AIDS-education portion of the intervention delivered at the general community meetings, and group III (205 women) received no AIDS education and had no direct access to condoms (they were, however, free to attend community meetings and meet health workers).

The effects of intervention were measured in terms of self-reported condom use. This intervention resulted in an increase in the proportion of sexual encounters where condoms were used. For instance, group I reported a 39% increase in the number of encounters where condoms were used compared to 35% in group II and 30% in group III. The investigators believe that the reportedly high condom use among the participants in group III was influenced by the voluntary attendance of some subjects at one or more of the *barazas* and/or by their having been refused by clients because condoms were not available. An increase in the availability of condoms in general also seemed to be an extremely effective measure in increasing condom use (Ngugi et al., 1988).

A second study surveyed registered commercial sex workers in Greece between March 1984 and November 1985. Researchers screened the sex workers in the greater Athens area for the presence of HIV antibodies. An intense educational campaign was implemented which incorporated HIV testing and individual counseling and was provided every three months for a three-year period. A sample of 902 commercial sex workers received the intervention. The exact components of the educational campaign were not listed by the authors.

The study participants were requested to visit a health clinic twice a week and were asked at the time of each visit to give epidemiologic data regarding their sexual activity (condom use and number of sexual partners). They were also clinically examined for lymphadenopathy, chronic diarrhea, weight loss, night sweats, and unexplained fatigue (Papaevangelou et al., 1988).

Changes were measured in condom use and in sero conversion rates. The results of the study indicated that the intervention increased the use of condoms from 66% in 1984 to 98% in 1987, and lowered sero conversion rates from 0.74 in 1986 to 0.00 in 1987 (Papaevangelou et al., 1988).

In 1990 a study was conducted (Corby, Barchi, Wolitski, Smith and Martin, 1990), in which a sample of 64 sex workers were given condom-skills training and HIV testing. Participants were randomly assigned to one of four groups. Group I received HIV counseling and testing and group II a demonstration of condom use. Group III received both the counseling and testing and the condom-use demonstration, and group IV was a wait-listed control group. The study's findings suggest that, as measured at a one-month follow-up, the rate of condom use during vaginal intercourse with customers was highest in group III (Choi and Coates, 1994).

2.2. Community-level interventions

Researchers report that although "peer education combined with condom distribution has been widely used to change the behaviors of CSW and their clients, there is a scarcity of carefully designed research documenting program efficacy" (Choi and Coates, 1994, p. 1377). Only five studies have reported the effects of community-based peer education on high-risk behavior. The authors of these studies did not indicate the theoretical framework implicit in each initiative. However, as most of these studies document the use of peer led/trained commercial sex workers as facilitators of the intervention, the assumption can be made that each relied on diffusion-of-innovation principles.

In a study conducted in the Cross River State of Nigeria, 272 participants were involved in an intervention that included the training of sex workers, clients, brothel owners, and managers as peer educators; community outreach by peer educators; and the distribution of condoms at brothels. A follow-up evaluation, one year after the intervention, showed an increase in consistent condom use by the commercial sex workers (from 12.2% to 24.2%), and more favorable attitudes about the efficacy of condom use among both sex workers (an increase from 17.4% to 82.9%) and their clients (from 27.1% to 61.9%) (Choi and Coates, 1994).

Similar findings have been reported for other community-based, peer-education and condom-distribution initiatives. In 1990 and 1991, 80 commercial sex workers were trained as peer educators in Bulawayo, Zimbabwe. Over 1.5 million condoms were distributed, and 2732 meetings on AIDS were held for sex workers and the general public. The study group consisted of 227 commercial sex workers who completed measurement surveys before and after the intervention. At one-year follow-up, consistent condom use was reported to have increased among sex workers from 8.6% at baseline to 58.3%.

In 1994, researchers in Africa evaluated the effectiveness of a community-based intervention, which distributed condoms and spermicidal foaming tablets to commercial sex workers and provided them with AIDS education from trained peer educators for a six-month period.

A sample of 382 women, who identified themselves as commercial sex workers and who resided in Accra, Ghana, volunteered to participate. Initial interviews were conducted to gather baseline information pertaining to condom use and knowledge about AIDS. Local health workers were used to train and support selected women sex workers whose main purpose was to promote condom use (Asamoah-Adu et al., 1994). Group discussions were led by these trained facilitators. They provided information on basic health education and distributed condoms. Detailed explanation of the training sessions, the content of group discussion, and the components of the health-education initiatives were not specified by the authors.

At follow-up, after the intervention, the women reported increases in the use of condoms by their clients from 6% in 1987, to 71% in 1988, and 64% in 1991. These researchers found the results of this study to be consistent with other studies (e.g., Kelly et al., 1991; Dorfman, et al., 1992) that report significant decreases in high-risk behavior when opinion leaders and/or local community members are used to disseminate information and promote new social norms.

Researchers argue that a need exists for carefully designed, controlled studies to determine the efficacy of community based initiatives and for interventions targeting the sex workers. In summary, few controlled studies of HIV prevention in CSW have been conducted and often times the conceptual frameworks and prevention strategies are only vaguely described. Despite these limitations, existing studies indicate successful outcomes in increased use of condoms among CSW and their partners. However there is a need for better controlled studies with more clearly articulated theoretical frameworks to assess the most effective methods of risk reduction in the different populations of CSW and their clients and steady partners.

3. Adolescent Populations

The behavioral theories most commonly and successfully applied in HIV/AIDS prevention programs for adolescents include the health belief model, theory of reasoned action, social influence — or social cognitive — theory, and social inoculation theory. One or more components of the above theories are often woven together to create interventions which promote the acquisition of new skills and knowledge in the context of adolescent social networks.

In most cases, the HIV/AIDS interventions evaluated in the research literature have included both male and female adolescents from a variety of racial, ethnic, and income groups. With few exceptions, however, the research has been limited to interventions that target only heterosexual high-risk behavior. Only one intervention has been described that addressed male-to-male high-risk behavior (Rotherman-Borus, Reid, and Rosario, 1994) and our review found none that addressed injection-drug use in an exclusively adolescent population. Despite a preponderance of evidence that the social and developmental issues that affect the high-risk sexual behavior of adolescent girls are distinct from those affecting adolescent boys, (Amaro, 1995) few interventions take gender into account or even consider gender differences in analysis of data.

We found no literature evaluating HIV risk-reduction interventions targeted at incarcerated youth or youth living in rural areas. Finally, little is known about the long-term efficacy of HIV-prevention programs in adolescent populations because the follow-up periods have generally not exceeded 18 months.

3.1. Individual-level programs

Few HIV-prevention efforts for adolescents have been formally evaluated that concentrate primarily on individual — one-to-one — health education or counseling. The individual-level interventions most often evaluated have been delivered in the setting of clinics and are based on a framework consistent with tenets of the health-belief model and social cognitive theory. Outcomes that were most often measured included knowledge about HIV/AIDS, attitudes toward reducing the risk of sex and drug-use practices, intentions to alter behavior, and — self-reported — sexual and drug-use behavior.

In Worcester, Massachusetts, one-to-one peer counseling, in a primary-care setting, was compared with one-to-one counseling delivered by health-care providers to the patients of an inner-city family-health clinic (Quirk, Godkin, and Schwenzfeier, 1993). The study population of 214 female patients, 14 to 25 years of age, comprised 25 African-Americans, 76 Latinos, 105 Caucasians, and 8 others. Although the specific behavioral theories on which the interventions were based were not cited, components of the interventions were consistent with the theory of reasoned action, the health-belief model, and social cognitive theory. In the peer-counseled group, a trained peer counselor viewed a "rap" video with each patient and reviewed informational brochures about HIV/AIDS, its routes of transmission, and preventive measures. The broadcast-quality rap video was produced by teens and contained ten statements about AIDS. The peer educators provided information only and did not question subjects about their drug use or sexual practices. In the family-health-care clinic group, health-care providers offered one-to-one counseling in six content areas: (1) the desire and motivation of the patients to maintain — or to change to — safer sex and drug-use practices, (2) the patients' experience with sex and injection drugs, (3) the factors that inhibit safer sex and drug-use practices, (4) the resources to support safer behavior, (5) a plan of action, (6) methods of dealing with factors that may interfere with the plan. The counseling sessions were incorporated into a regular office visit and lasted ten minutes or less.

The outcome measures were assessed at pre-intervention, immediately following the intervention and at one month following the intervention. Patient's knowledge, attitudes and behavior related to AIDS was assessed by a self-administered instrument. Sexual and drug-use practices were also assessed. The results were analyzed both for the two interventions combined and separately. In both groups, knowledge about HIV/AIDS improved immediately after the interventions. The most noticeable improvements were in the level of patients' knowledge about the effectiveness of wearing a condom and cleaning IV drug works with bleach. Most of these improvements, as well as increases in basic knowledge about AIDS, were still retained one month after the intervention. Although no changes were evident in overall sexual behavior, for the combined groups(entire sample), there was a significant, self-reported decrease in the frequency of vaginal intercourse for a subset of the most sexually active.

Analysis showed that, after the intervention, there was a statistically significant difference between the two groups in knowledge about high-risk drug-use behavior. This indicated that the "peer-delivered interventions were more successful in conveying information about using bleach to prevent IV drug transmission of HIV" (Quirk et al, 1993, p. 25). A statistically significant difference between the groups was also found in knowledge about high-risk sexual behavior. The health-care providers, it was concluded, were more effective than the peer counselors in improving patients' knowledge about the risks of unprotected sex.

Another study evaluated two individual-level interventions, delivered by primary-care providers to adolescents at high risk, in an urban adolescent clinic connected with a children's hospital in the northeastern United States.(Mansfield, Conroy, Emans, and Woods, 1993). Ninety high-risk youth, matched for age, sex, sexual history, and other characteristics, were randomly assigned either to a standard-care intervention or to a group receiving standard care plus an HIV/AIDS counseling session with a physician. The adolescents were predominantly African-American and female. The ten-minute, standard-care intervention consisted of an

individualized risk assessment for HIV, counseling on condom use, distribution of a pamphlet on HIV, and an offer of free condoms. The twenty-minute, enhanced intervention consisted of the standard-care procedures plus a counseling session with a physician to discuss the subject's perceived susceptibility to HIV, the prevention of AIDS, and the subject's confidence in successful condom use. Although it was not specifically stated by the authors, the interventions were consistent with the health-belief model and social cognitive theory in that they focused on perceived susceptibility to the disease, risk, and the patient's sense of the efficacy of taking protective action.

Outcomes were measured by interviewers before and after the intervention. They included whether or not subjects had been sexually active, their average number of sexual partners per month, and the self-reported, consistent use of condoms. The follow-up interview took place approximately two months after the intervention. The analysis of outcome measures indicated that the subjects of both interventions (standard-care and enhanced-care) significantly decreased their sexual activity. One hundred percent of the subjects in both groups were sexually active before counseling, but only 82% of the standard-care group and 68% of the enhanced-care group were active afterwards. Both groups also significantly reduced their average number of sexual partners per month and both improved significantly on measures of consistent condom use. Self-reported, consistent condom use, measured after the intervention, rose from 6% to 11% in the enhanced-care group, and from 5% to 8% in the standard-care group. The difference in consistent condom use between the two groups was not statistically significant.

The results of the study were limited in that the groups were compared to each other, but not to an uncounseled, control group. Other notable limitations include the small sample size, the short follow-up period, and the inconsistent procedures used to collect follow-up data.

A peer-education program on HIV, which served a group of 241 female adolescents, was evaluated in a hospital-based adolescent clinic in Philadelphia (Slap, Plotkin, Khalid, Michaelman, and Forke, 1991). The study population was 90% African-American, 76% of whom received medical assistance or had no health insurance. Teen counselors (aged 16 to 19) were trained to conduct one-to-one health-education sessions lasting from 5 to 30 minutes with girls, aged 12 to 19 years, who were patients at the Adolescent Medicine Clinic of the Children's Hospital of Philadelphia.

The underlying behavioral theories of the intervention were not specified by the authors. However, the intervention is consistent with the health-belief model. The education sessions covered information about the prevention of AIDS, transmission routes of HIV, and the spectrum of HIV infection. There was an emphasis on seeing risk as a function of behavior rather than group affiliation. Practices which do not transmit HIV were covered, as were the differences between HIV infection and AIDS. HIV-antibody testing, counseling, and confidentiality were discussed as part of the peer-education session, as was the relationship between HIV and substance abuse. Abstinence, contraception, and the use of condoms were also covered. Peer counselors conducted the sessions using a cue-word flip book and a set of illustrated brochures as teaching aids.

Each of the subjects' knowledge about HIV/AIDS and high-risk sexual behavior was measured before the intervention and two to six weeks after the intervention. The pre-intervention measurements were made, on site, with questionnaires filled out by the

participants. Measurements after the intervention were done through telephone interviews. The subjects' knowledge about HIV, as measured on the study's scale, was 10% higher at follow-up than at baseline, a statistically significant increase. Specifically, the subjects' score on items that measured knowledge about how HIV is transmitted (oral sex and sex with an injection-drug user), how HIV is not transmitted, how it is prevented, and what individuals are at risk improved significantly at follow-up. However, the authors noted, "The one question that demonstrated no improvement asked about heterosexual transmission. Only one-half of the adolescents at baseline and follow-up knew that heterosexuals are at risk. Two other questions with disturbing results, despite statistically significant improvements, asked about the increase in HIV infection among black women (15% at baseline, 30% at follow-up) and the increased risk of HIV infection among individuals with other sexually transmitted diseases (26% at baseline, 50% at follow-up)" (Slap et al, 1991, p. 438).

Changes in self-reported sexual behavior were also assessed. The proportion of the subjects who reported having sexual intercourse within the preceding two weeks decreased by 33% from baseline to follow-up. The proportion not using condoms during sex, in the preceding two weeks, decreased by 25% from baseline to follow-up. However, the results of this evaluation should be interpreted cautiously. No control group was used for comparison, the variables were measured in different ways before and after the intervention, and the follow up period was short.

3.2. Group-level programs

Schools. Many of the group-level interventions for adolescents that are evaluated in the research literature were delivered in school settings as one component of a larger sex-education curriculum. Eisen (Eisen, Zellman, and McAlister, 1990) compared the effectiveness of a school sex-education program, based on the health-belief model and social learning theory, with several other publicly funded, community and school-based programs. A 12- to 15-hour sex-education curriculum was tested in a controlled field study of 1,444 adolescent males and females, 13 to 19 years of age, in a school setting. The study sample was 52% female, 15% white and non-Hispanic, 24% black, 53% Latino, and 8% of Asian descent. The theory-based experimental curriculum, delivered by family-planning educators and school staff, included four content areas: 1) factual information; 2) values, feelings, and emotions; 3) decision-making; and 4) personal responsibility for one's sexual behavior. In addition to lectures and leader-guided discussions, interactive and participatory teaching methods such as role-playing, simulation, role reversal, board games, and "trigger" films were used to communicate and reinforce information.

A similar quasi-experimental study (Kirby, Barth, Leland, and Fetro, 1991) compared a theory-based, sex-education program called "Reducing The Risk" with a standard, mandatory, health-education class, using a group of 758 students at 13 California high schools. The subjects were 53% female, 62% white, 20% Latino, and 2% black. The experimental program, which sought to create explicit norms against unprotected sexual intercourse, was delivered by trained high-school teachers during 15 class periods. Based on social learning theory, social inoculation theory, and cognitive-behavior theory, the intervention included activities to personalize information about sexuality, reproduction, and contraception. Decision-making and assertive communication skills were taught; practice sessions, in which students applied these skills in

personally difficult situations, were part of the intervention. As in Eisen's school-based intervention, interactive teaching methods, such as role-playing and practice sessions, were used.

Although these school-based programs are valuable as examples of interventions founded on theory and aimed at adolescents, their results — in terms of any specific impact on knowledge and behavior related to the prevention of HIV infection and AIDS — are of limited value. The studies' measures of knowledge, attitudes, and beliefs focused on reproduction, general issues of sexuality and contraceptive use, rather than on HIV/AIDS prevention. For example, Eisen et al. (1990) used an instrument to measure students' knowledge that included questions about reproductive physiology, myths about pregnancy, birth control, sexually transmitted diseases, and the means of STD prevention. However, increases in the level of student knowledge, from before to after the education program, were not reported separately for items related to STD prevention. Kirby et al. (1991), however, were able to demonstrate improvements in knowledge related specifically to the effectiveness, in preventing STDs, of condoms and contraceptive spermicide. "Between the pre-test and the six month follow-up, the percentage of questions answered correctly by the average member of the treatment group rose from 57 percent to 75 percent (a gain of 18 percentage points), compared to an increase in the comparison group from 56 percent to 65 percent (a gain of 9 percentage points)." (Kirby et al, 1991, p.258)

Even though "reducing sexual risk behavior" was the stated program goal of these school-based studies, (Kirby et al., 1991; Eisen et al., 1990; Howard and Blamey-McCabe, 1990), measures of changes in behavior in these studies were not as specific to the prevention of AIDS as they were to the prevention of pregnancy. For example, behavioral outcomes were reported in broad categories such as "contraceptive use," rather than in specific areas like "condom use," and it is often unclear whether "unprotected sexual intercourse" or "reductions in sexual risk behavior" refer to reductions in sexual behavior which puts one at risk for unintended pregnancy or to behavior which increases the risk of sexually transmitted disease, including HIV infection.

One behavioral goal all three studies sought to measure was achieving a delay in an adolescent's initiation of sexual activity. This outcome is specific to the prevention of AIDS, because delaying the onset of sexual involvement reduces an adolescent's length of exposure to HIV. The Kirby, Eisen, and Howard interventions all achieved measurable success in postponing the onset of sexual involvement for adolescents who were not sexually experienced before their participation in the school-based programs. Kirby et al. (1991) found that after 18 months "only 29% of the treatment group had initiated intercourse, compared with 38% of the comparison group. This finding represented a 24% reduction in the initiation of intercourse" (p.259). Kirby and colleagues did not report if there were any differences in the program's effect, for this outcome, between the two sexes. The same outcome, however, was analyzed separately by sex for the sex-education program evaluated by Eisen et al. (1990), who found that the delay in first sexual involvement was limited to adolescent males. "Males who participated in the experimental program were significantly less likely to have become coitally active than were comparison males in the follow-up year, while females in these two groups were equally likely to have done so" (p.266).

The third of these theory-based, peer-led, school interventions (Howard and Blamey-McCabe, 1990) made postponing sexual involvement a central theme and an explicit

program goal. Based primarily on social inoculation theory, the intervention focused on helping young people examine why they were having sex, as opposed to merely emphasizing the negative consequences of engaging in sex. Teens were encouraged to discuss various sources of pressure to engage in sex — whether from the media or from peers — and were taught to practice resistance skills. The sample consisted of 536 low-income, minority eighth-graders. The five-session program was delivered in a school setting, led by older teens in the 11th and 12th grades. Four weekly sessions were held, followed by a fifth session — designed to reinforce the information and skills learned in the previous sessions — one to three months later. The program's goal of delaying the onset of sexual activity had been influenced by a survey of over 1000 sexually involved adolescent girls that indicated they wanted more information on "how to say no without hurting the other person's feelings" (Howard and Blamey-McCabe, p.22).

The outcomes measured were limited to data on the beginning of sexual activity and did not include measures of change in the adolescents' knowledge, attitudes, or beliefs. The researchers found that boys in the comparison control group were three times more likely to have begun having sex than boys in the experimental, "Postponing Sexual Involvement" group. Girls in the comparison group were fifteen times more likely to have started sexual activity than girls in the intervention group. Although the program discouraged experimentation with sex it also made the point that "just because a person has sex, it does not mean that her or she has to continue to be sexually active." (Howard and Blamey-McCabe, p.24). As expected, students in the program who became sexually active after participating in the intervention described themselves as "having tried sex just once or twice" significantly more often than did students in the comparison group (Howard and Blamey-McCabe, 1990, p. 24).

One theory-based curriculum specifically designed to address the risk of AIDS was tested in four academic high schools of New York City (Walter and Vaughan, 1993). The sample of 1316 students was 41.8% black, 32.6% Hispanic, 15.6% non-Hispanic white, and 10% other. The four schools were divided into two demographically similar pairs. The sample of ninth- and eleventh- grade students was randomly assigned to assigned to either an HIV/AIDS intervention or a non-intervention, control group.

The intervention, delivered by the regular high-school teachers, was guided by three theories of behavior change: the health-belief model, social cognitive theory, and social influence theory. Six sessions, each lasting one class period, were delivered on consecutive days. The first two sessions focused on factual information about HIV/AIDS and risk appraisal. The goal was to foster in students an appropriate level of concern about the disease, based on their individual appraisal of risk, and direct them toward risk-reducing resources within their community.

The next two sessions concentrated on correcting students' misconceptions about how common high-risk behavior was among their peers and helping them clarify their personal values regarding sexual involvement. The sessions also focused on building empowerment skills, by teaching students how to negotiate the delay of sexual involvement. Building students' confidence in their ability to obtain and use condoms was the focus of the last sessions, in addition to enhancing the skills needed to negotiate condom use with sex partners.

The outcome variables measured included knowledge and beliefs about HIV/AIDS in a number of areas — susceptibility to the disease, the benefits of risk-reduction behavior, the barriers to risk reduction, personal values and social norms regarding risk reduction, confidence

in the efficacy of personal risk-reduction practices — and changes in high-risk sexual behavior. Data were collected at baseline and three months after the intervention.

Analysis of the results showed statistically significant differences in the changes (from before to after the program) between the intervention and comparison groups, in five of the eight variables measured. The intervention group showed significantly greater improvement than did the comparison group in their knowledge and beliefs about HIV/AIDS, in their beliefs regarding the benefits of risk-reduction practice, and in study scores related to social norms and self-efficacy. Favorable changes in sexual behavior were also greater in the intervention group and "appeared to have the greatest effect on involvement in sexual intercourse with high-risk partners, sexual monogamy, and condom use" (Walter and Vaughan, 1993, p. 728). Mean scores on the "Behavior Risk Index" which measured, in addition to other items, involvement in sexual intercourse, consistency of condom use and number of intercourse partners, decreased slightly from baseline to follow-up (1.5-1.3) for the intervention group in comparison to an increase in the comparison group (1.0-1.3) (Walter & Vaughan, 1993).

3.3. Community-based organizations.

A culturally tailored, AIDS-prevention intervention was tested for its effectiveness in increasing condom use on a group of 109 sexually active, inner-city, African-American women (Jemmot and Jemmot, 1992). The adolescents (mean age, 16.79 years) participated in an Urban League AIDS-prevention program. They were recruited from local high schools, teen programs, and community-based organizations. Focus groups of African-American youth were organized to help inform program workers and to tailor the program's message in ways that were culturally appealing and credible to adolescent black females.

The intervention, based on social cognitive theory, was designed to increase the young women's personal sense of confidence about the effectiveness of condom use (the concept labeled "self-efficacy" in the theory), including confidence that they could persuade their partners to use a condom. The program also sought to influence adolescents' belief that condoms interfere with or diminish sexual pleasure. The strategy of targeting adolescents' self-efficacy and "outcome expectancies" around condom use came directly from the tenets of social cognitive theory. Improved self-efficacy and outcome expectancy was expected to strengthen the young women's intention to use condoms. This process is seen as an important prerequisite to the adoption of new behavior in the theory of reasoned action.

The intervention was delivered in small groups of six to ten adolescents by a specially trained, female, health educator. Since the focus groups had indicated that this target population had a strong identification with Africa, program posters and messages incorporated themes of "ethnic pride," using images and colors associated with African liberation movement. The intervention took place five hours in total and used interactive and participatory teaching methods.

The first session emphasized factual information about HIV/AIDS including its cause, its routes of transmission, preventions measures, and the disease's impact on black women of childbearing age. The information was taught and reinforced using discussion, a video, and a game called "AIDS basketball." The second session, focused on the theoretical component of outcome expectancies, included a discussion about partners' reactions to condom use and the

effect of condoms on sexual pleasure. The adolescents discussed — and practiced — responding to partners' objections to using condoms and viewed a film in which a young African-American woman successfully negotiates condom use with her partner. Ways of eroticizing condom use were also considered. The third session concentrated, with the aid of role-playing, on building further skills and self-confidence in the use of condoms and in negotiating with partners.

The intention of participants to use condoms in the next three months, their perceived self-efficacy about the use of condoms, their expectancies about condom use, and their knowledge of AIDS and sexually transmitted disease were measured at baseline and immediately after the intervention. The evaluation results supported the author's hypothesis that increased self-efficacy and positive outcome expectancies would strengthen the adolescents' intentions to use condoms. "Self-efficacy to use condoms was significantly higher than before the intervention. Differences in outcome expectancies were also significant." After completing the program "the women believed more strongly that condoms do not interfere with sexual pleasure, that their partners would be supportive of condom use . . . and that condoms prevent pregnancy, STDs, and AIDS . . ." (Jemmot & Jemmot, 1990, p.276). The post intervention mean scores for self-efficacy was not reported. For measures of outcome expectancies the mean score increased from 3.68 at pre-intervention to 4.01 post-intervention. Scores on measures of partner approval of condom use rose from 3.88 at pre-intervention to 4.06 post intervention and the mean scores for prevention beliefs increased from 3.99 at pre-intervention to 4.25 post-intervention. It is not known, however, whether the results of such an intervention will be sustained over time, because the follow-up measurements were taken so quickly after the program. The lack of a comparison or control group was also a significant limitation of this study. It is also important to note that changed "intentions" do not necessarily result in changed behavior. Findings based on measures of intention rather than actual behavior should be interpreted cautiously because they do not reflect the barriers youth experience in carrying out the intent to use condoms.

Another study, also without a control group, of an HIV/AIDS risk-reduction program linked to a community organization, took place in New York, with a sample of 138 young, Hispanic (51%) and African-American (31%), gay and bisexual males (Rotherman-Borus, Reid, and Rosario, 1994). This is the only intervention noted in our review which specifically addressed male-to-male adolescent sexual behavior. The adolescents were recruited at a community-based agency providing recreational and social services to gay and bisexual youth. The intervention, based on social cognitive theory, consisted of education, coping-skills training, access to health-care services, and individual counseling about the barriers to safer sex and issues related to the prejudice against homosexuality. Small-group sessions, lasting from 90 to 120 minutes, were conducted at the agency 2-3 days per week. The content of the sessions varied from day to day. The 20-session intervention rotated over the course of three weeks and youth joined the sessions at varying points in the sequence. Highly interactive and experiential teaching techniques were used to teach and reinforce information and skills. Youths produced their own video dramatizations, public service announcements, raps, and messages on AIDS prevention.

"Youths received a minimum of 1 intervention session or as many as 30 (mean 11.3 . . .) About equal numbers received from 1 to 5 session (N=45), from 6-14 sessions (N=46), and more than 14 sessions (N=45)," (Rotherman and Borus, 1994, p.1940). The HIV intervention was

initiated simultaneously with the beginning of participant recruitment. Due to variation in the number of sessions attended and in the timing, follow up measures were not reported as the number of months following the intervention-but rather at 3, 6, and 12 months after baseline. Sexual behavior was assessed by the self-reported number of unprotected active or receptive acts of anal intercourse, the number of unprotected acts of oral sex, the level of abstinence from anal and/or oral sex, and the total number of sex partners. "Changes in sexual risk behavior were associated with attending HIV intervention sessions. . . . The mean proportion of protected acts, for those who were sexually active, rose from 60% at baseline to 78% at 12 months for anal sex and from 28% at baseline to 45% at twelve months for oral sex. . . . African-American youth showed significant and substantial reductions in both anal and oral risk acts over 1 year. . . . Attending an HIV intervention was associated with Hispanic youths' reduction in sexual risk acts between the 3 and 6 month assessments for anal sex; a similar improvement was present between 6 and 12 months for oral sex" (Rotherman-Borus et al., 1994, p.1945). The intervention had no effect, however, on those gay and bisexual youth who engaged in commercial sex. In fact, youth in this group increased their level of high-risk anal and oral sex risk over time.

In the home. Winnet et al. (1992) examined the effectiveness of a family-focused, home-based, AIDS-prevention program in increasing knowledge about the disease and raising the level of communication between young teens and their parents. Forty-six one- and two-parent families in Roanoke, Virginia were randomly assigned to either the intervention group or a control group. A family video program was specifically designed for home viewing — without professional guidance — by sexually uninitiated, 12-to-14-year-old adolescents and their parents. The teenage children in the sample were not at high risk for HIV infection. The theoretical framework on which the program was based was not stated by the authors. However, the program focused on heightening teenagers' perceptions of their risk of contracting HIV and on improving the skills of teenagers and their families in coping, communication, and problem-solving. This strategy is consistent with the health-belief model and social cognitive theory.

The intervention consisted of a two-hour, four-part, video dramatization covering basic information about HIV/AIDS and high-risk behavior. The first part of the video presented facts about HIV and AIDS, including the modes of HIV transmission, information on the meaning of the HIV-incubation period for adolescents, high-risk behavior common to adolescents, prevention measures, and the association of drug and alcohol use with specific high-risk practices.

The second part of the video followed a family through a series of minor crises demonstrating the need for, and benefits of, problem-solving skills and assertive communication within families. Healthy coping behavior, as well as further family problem-solving and assertiveness skills, were dramatized in the third portion of the video. The fourth, and final, part of the video presented 12 situations for practicing the newly learned family and individual skills. The families viewing the tapes were instructed, at the end of a pre-intervention assessment, to practice the skills they were about to learn for 15 minutes, at least three times a week, during the viewing period. Comparisons of the variables, as measured before and after the intervention, demonstrated that knowledge of both parents and teenagers about HIV-related issues had improved significantly. The mean knowledge scores for parents rose from 62.17 before the

intervention to 80.87 afterwards. For teenagers in the viewing families, these same scores rose from 43.04 to 63.48. Family problem-solving scores also improved for both teens and parents. Separate scores for teen assertiveness and problem-solving also increased, but to a lesser degree. These effects were maintained at six month follow-up. The intervention was repeated with the control group and the results were replicated. Although by all accounts homeless and runaway youth are at high risk for HIV infection, only one evaluation of an intervention specifically aimed at this population was found in the public-health literature (Rotherman-Borus, Koopman, Haignere, and Davies, 1991). A non-randomized — but controlled — trial was conducted of an HIV risk-reduction intervention targeted at black and Latino adolescents living in a homeless shelter. The intervention was delivered by a trained professional in small groups. Although the authors did not cite the theoretical models on which their intervention was based, the program was consistent with the health-belief model and social learning theory.

Small groups of ten or fewer teenagers focused on skills training, behavioral self-management, and building social support. The groups met four times per week for 90 to 120 minutes. The number of sessions subjects were exposed to varied with their length of stay at the shelter. The program included group and individual health-education and counseling sessions, individual assistance in facing the barriers to safer sex, training in coping skills, and access to health care.

Highly interactive and experiential teaching techniques were used. Youths produced their own video dramatizations, public service announcements, raps, and prevention messages. Outcome variables measured included sexual abstinence, consistent condom use, and other patterns of behavior affecting the risk of infection (e.g., number of sexual partners and sexual encounters).

Outcomes were analyzed for any effect related to the number of intervention sessions a subject attended. No changes in levels of abstinence were found as a result of the intervention. However, the number of intervention sessions attended significantly predicted increases in consistent condom use and reductions in high-risk patterns of sexual behavior, as measured three months and six months after the intervention. Sixty percent of the adolescents who had attended 15 sessions or more reported consistent condom use at a six-month follow-up versus only 12% of those who had attended two or fewer sessions and approximately 22% of those who had attended 10 to 14 sessions. "For runaways receiving 15 or more sessions, the high risk pattern of sexual behavior fell from 20% at baseline to zero at 3 months and 6 months"(Rotherman-Borus et al., p. 1240)

3.4. Community-level programs

A multifaceted, community-level, HIV-prevention program for Latino youth was evaluated using a longitudinal comparison of groups of Latino youth from an intervention city, Boston, and a comparison city, Hartford, Connecticut (Sellers, McGraw, and McKinlay, 1994). Based on social cognitive theory and diffusion-of-innovation and social-marketing concepts, the 18-month intervention was designed to increase AIDS awareness and reduce the risk of HIV infection by increasing condom use among sexually active teenagers.

Intervention activities, conducted by trained peer leaders, focused on the promotion and distribution of condoms. Workshops were held in schools, community organizations, health centers, and in homes. Project messages were also disseminated via door-to-door canvassing, presentations at large community events, posters in local businesses and public transit facilities, and through radio and television.

Analysis of the program's effect on teen sexual activity showed that the promotion and distribution of condoms did not increase sexual activity among the adolescents in the intervention city. In fact, in comparison with youth in the control city, Hartford, males in Boston were less likely to have begun sexual intercourse and females were less likely to have multiple partners. Further details about the measurement of risk and the effectiveness of this community intervention to reduce risk are under review

4. Patients of Sexually-Transmitted-Disease Clinics

Two types of HIV-prevention efforts, designed specifically for patients of sexually-transmitted-disease (STD) clinics, have been formally evaluated: HIV-antibody testing, with post-test counseling; and health education, with promotion of the use of condoms. HIV anti-body counseling-and-testing strategies, widely recommended since 1986, have been evaluated for their effectiveness in reducing the rates of reinfection with STD in patients of public STD clinics, in several American cities (Zenilman, Erickson, Fox, Reichart, and Hook, 1992; Cohen, MacKinnon, Dent, Mason, and Sullivan, 1992; Wengar, Linn, Epstein, and Shapiro, 1991). In addition, patient-education and condom-promotion strategies, with and without HIV-antibody testing, have been evaluated for effectiveness in reducing the frequency of high-risk behavior and the rates of repeated STD infection (Solomon and DeJong, 1989; Cohen et al., 1990).

Surprisingly, formal evaluation of HIV-risk-reduction programs targeted specifically at patients of STD clinics have been predominantly limited to high-risk heterosexual populations. Some descriptive studies have shown that homosexual men at high risk and injection-drug users, who have received HIV-antibody testing and counseling, have decreased their level of high-risk behavior. We found no studies, however, that formally evaluated the effectiveness of an HIV-risk-reduction intervention delivered to those groups in STD clinics. The differences between the sexes in the effect of condom-promotion strategies remains unexplored, as does the usefulness of encouraging practices that may be more appropriate and accessible to women, such as use of female condoms and/or spermicide.

4.1. Individual-level programs

An intervention using a condom-promotion video was tested in a randomized, controlled study of 102 patients in a public STD-clinic at Boston City Hospital. The population was 81% male and 79% black. Most of the patients were single and ranged from 18 to 51 years of age (median, 24 years). Twenty four percent had completed only junior high school and 37% had completed high school. Approximately 58% reported they had never, or almost never, used condoms before their visit to the clinic.

Two separate studies evaluated the use of the condom-promotion video in this clinic. In the first study, pre-intervention and post-intervention measurements of knowledge about HIV/AIDS, attitudes, and beliefs were compared between the intervention group and a control

group; patient strategies for persuading sex partners to use a condom were also assessed (Soloman and DeJong, 1989). The second study looked at an intervention that combined the video program with the distribution of coupons for free condoms. The same outcome variables were measured as in the first study; in addition, the number of coupons redeemed for free condoms was recorded. The control-group patients in the second study were given the condom coupons, but they did not view the videotape.

The intervention, based on social-marketing (or social influence) theory, presented the use of condoms as socially acceptable and emphasized the notion that men who use condoms are being caring toward their female partners. A cast of African-American performers acted out a dramatization — in soap opera style — which focused on the interpersonal and communication skills necessary to negotiate safer sex with a partner. Examples of conflict resolution and effective communication were portrayed and the drama fostered the idea that condom use can be sexually exciting.

Outcome variables were measured immediately after the subjects viewed the video program. Of the patients who viewed the videotape, 70.6% correctly answered 11 of 12 items pertaining to information about HIV and AIDS, a significantly greater proportion than the 7.7% who answered correctly from the control group. On measures of favorable attitudes, 70.6% of the intervention group answered 13 of 14 items “favorably” versus only 32.7% of the control group. As expected, intervention patients were able to use significantly more strategies to persuade partners to use condoms than could patients in the control group. Analysis of the findings for selected subgroups of the patients found that the videotape was most effective in improving knowledge and attitudes related to HIV in those patients with less formal education, those who had never used condoms, and those who reported only one sexual partner in the previous month.

Similar improvement, by the intervention subjects, in knowledge, beliefs, and attitudes related to HIV were found in the second study, which also measured redemption of the coupons for free condoms. Patients who viewed the videotape redeemed significantly more coupons than did clinic patients who had not viewed it.

The use of HIV-antibody testing and counseling for patients of public STD clinics has been tested in several cities (Wengar et al., 1991; Otten et al., 1993; Zenilman et al., 1992). In a randomized, controlled study of 256 heterosexual adult patients of an STD clinic, Wengar et al. (1991) compared a group of patients who went through an educational module and received an HIV-antibody test with a group of control subjects who received the same education module without the test. Several cognitive variables related to HIV/AIDS were measured, as were the rates of repeat STD infection. The study was conducted in an unnamed city. The study population consisted of heterosexual men, 5% of whom were injection drug users. Eighty-four percent were black; most were unmarried, had graduated from high school, and were employed. The mean age of the sample was 27 years. Seven percent of the men in the sample had previously tested positive for HIV infection.

All the subjects took part in the HIV/AIDS education module. The module consisted of the distribution of a pamphlet in which safe and unsafe sexual acts and condom use were explicitly discussed, and the viewing of a 15-minute videotape on high-risk behavior, the virtues of condom use, and the ways of discussing risk reduction and condom use with a sex partner. All

subjects also participated in a one-to-one, 10-minute counseling session, which focused on assessment of personal risk, the HIV-antibody test, and the answering of patients' questions. All the standard aspects of HIV-testing counseling were covered, for all subjects.

Only the patients in the intervention group received an HIV-antibody test. Although the behavioral theory underlying the intervention was not stated by the authors, the intervention was consistent with the health-belief model. The content of the HIV-prevention message appeared designed to heighten the subjects' perception of their personal risk for becoming infected with HIV.

There were no differences between intervention and control subjects in pre-intervention measurements of knowledge about HIV/AIDS, in mental-health scores or in health-worry scores. Eight weeks after the education session, a mail-in questionnaire was sent to subjects. This post-intervention evaluation demonstrated that patients in the intervention group expressed significantly greater concern about AIDS than did the control group. Forty-five percent of the intervention subjects reported that they were more worried about getting AIDS than they had been at baseline, as compared with 26% of the control subjects.

Intervention subjects were also more likely than those in the control group to report at follow-up that they had asked their last sexual partner about the risk of carrying HIV. The proportion of subjects who asked their last partners about HIV risk increased from 13% at baseline to 41% at follow-up, in the intervention group, versus an increase from 15% to 24% in the control group. Only 1% of the intervention subjects who said at baseline that they had asked about risk admitted "backsliding" at follow-up, in comparison to 9% of the control subjects. "Overall, 51% of the intervention subjects and 32% of the control subjects asked their last sexual partner more questions at follow-up than at baseline about their risk of carrying HIV" (Wengar et al., 1991, p.1583).

The difference between the proportion of intervention and control subjects — as measured at follow-up — who reported avoiding vaginal or anal intercourse without a condom with their most recent sexual partner approached, but did not reach, statistical significance (27% versus 13%). It was found "at follow-up fully 40% . . . of intervention subjects used a condom, had only oral sex, or stated they knew their partner's HIV sero status was negative, whereas only 20% . . . of control subjects did so" (Wengar et al., 1991, p.1584). Researchers concluded that "the findings of this study provide assurance that HIV testing in at-risk heterosexuals is safe: subjects, all of whom tested negative for HIV, did not increase risky sexual behavior and did not suffer adverse psychological consequences of testing. The findings also suggest that, for this heterosexual population, HIV antibody testing is effective in reducing certain risky sexual behaviors, perhaps through the mechanisms of increasing the level of worry about acquiring HIV infection" (p.1585).

Two studies evaluated the effects of HIV-testing and post-test counseling on the rates of repeat infection with STDs in patients attending public STD clinics: one in Miami (Otten et al; 1993) and one in Baltimore (Zenilman et al., 1992). Both studies used retrospective chart reviews to track repeat-infection rates in patients who had been tested and informed of their serologic status for HIV. In the Baltimore study, rates of repeat STD-infection, in patients who were tested and informed of their seropositive status, were compared with patients (matched by age, sex, and month in which the HIV test was done) who had been tested and informed of their negative

status for HIV. The reinfection rates for STDs were assessed 6 to 24 months after HIV testing and disclosure. In Miami, STD-infection rates were measured in the six-month period before subjects received an HIV test and six months after HIV testing and disclosure.

The Baltimore study found that, of 615 patients who tested positive for HIV, 9.7% were diagnosed with a repeat infection from a sexually transmitted disease during the follow-up period. Of 694 patients who tested negative, 8.8% were diagnosed with a repeat infection during follow-up. An additional 3.9% of the patients who tested positive for HIV presented with a probable STD, compared with 10.2% of the group that tested negative (Zenilman et al., 1992).

In the Miami study it was found that testing and counseling resulted in a moderate decrease (12%) in the rate of repeat STD infection among patients who were tested for HIV and informed of their positive serologic status. However, the risk of repeat infection for patients with negative results increased. Patients informed of their HIV-negative status experienced a 103% increase in the rate of repeat infections from any sexually transmitted disease. The results of these studies suggest a need to improve post-test counseling for all patients, but in particular for those whose HIV test results are negative.

4.2. Group level programs

A group-counseling, HIV-prevention strategy was tested on a sample of 551 patients of a public STD clinic in Los Angeles County (Cohen et al., 1990). The limited demographic information provided indicated that the study population consisted predominantly of African-American men, 20-30 years of age. Group health-education sessions were held in the waiting area of the clinic and were led by a female, African-American health professional. The intervention, based on social learning theory, focused on promoting the use of condoms and engaged subjects in discussions and role-playing about negotiating condom use with a sex partner. Subjects viewed the videotape "Let's do Something Different," which used a soap-opera-like format to present condoms as socially acceptable and sexually exciting. A pamphlet on proper condom use was distributed and subjects were offered 10 free condoms.

The rate of repeat STD-infection of intervention subjects was compared with the reinfection rate of the control group. The data was collected retrospectively, seven to nine months after the intervention, through a review of patients' medical records. Patients from the intervention group were 38% less likely to experience a repeat infection than were patients in the control group. However, when the records of men and women were analyzed separately this effect was found to be limited to men. Of 41 patients in the intervention group who were reinfected, 14% experienced two or more infections during the follow-up period versus 26% in the control group. The reinfection rates may have been underestimated, since the chart reviews were made at a single STD clinic and patients may have sought treatment elsewhere. Questions also remain as to whether the intervention was more effective for men because the message — that condom use will be acceptable to one's partner — was delivered by a woman or because of other reasons (e.g., condoms are worn by men; the number of women in the sample was too small to be meaningful)(Cohen et al., 1992).

C. STUDIES OF THE PREVENTION OF HIGH-RISK INJECTION DRUG USE

The use of injection drugs is the second most important form of behavior that puts people at high risk for the transmission of HIV. A significant amount of research has been done on the behavior of injection-drug users. In fact, more outcome studies have taken place with this population than with the largest high-risk group, gay and bisexual men. A more favorable political climate exists for research on drug use and its prevention than for research on gay/bisexual behavior and this, in combination with substantial funding from the National Institute of Alcohol Abuse and Alcoholism, the National Institute of Drug Abuse and CSAP(among others) has supported studies of addiction for a considerable period of time. The knowledge gained from successful substance-abuse prevention transfers naturally to behavioral interventions against HIV/AIDS. Effective AIDS-prevention programs have focused on three levels of intervention: 1) helping addicted individuals to enter drug detoxification and rehabilitation programs and to stop using drugs; 2) the so-called "harm minimization" of high-risk injection-drug use and other harm-reduction strategies, such as reducing the number of injections, reducing or halting the sharing of injection equipment, learning to sterilize injection equipment with bleach, and exchanging old equipment for new, sterile needles and syringes; and 3) helping the addicted population to modify high-risk sexual behavior. This last element includes reducing the number of partners, increasing the use of condoms for all sexual encounters, and reducing and/or eliminating high-risk sexual activity.

In a major review article, Choi and Coates (1994) noted that there had been 16 studies of the effectiveness with injection-drug users of educational counseling on AIDS, drug-abuse treatment, and HIV counseling-and-testing. Additionally, there had been 16 studies that examined the impact of needle-exchange programs. A further five studies examined the impact of street-based outreach and sustained media campaigns.

They noted that the controlled clinical trials of individual and/or group counseling in HIV counseling-and-testing settings had demonstrated mixed results. Observational studies of the long-term impact of drug-treatment and community-based interventions found a moderate-to-large decrease in rates of sero conversion and self-reported decreases in both high-risk drug use and sexual behavior.

1. Risk-Reduction Training

Of the five studies that assessed the short-term impact of training in skills to reduce the risk of AIDS, three found skills training to be effective in increasing condom use or in decreasing injection-drug use. One study conducted by McCusker et al.(1992) compared the effects of two risk-reduction interventions in which drug users were admitted to a short-term, inpatient, detoxification and rehabilitation program. The study compared the effectiveness of an informational intervention and a similar, but enhanced, intervention. It was hypothesized that they would both be equally effective in improving knowledge about AIDS and its transmission, but that the enhanced intervention would be more effective in changing attitudes, beliefs, skills, and behavior.

The theoretical basis for the purely informational intervention came from the health-belief model and the theory of reasoned action. The enhanced intervention emphasized this material even more strongly and added notions from social cognitive theory and relapse-prevention theory. The 567 subjects were recruited from a short-term (21-day) detoxification program. The majority of respondents were male (67%), white (81%), high-school-educated (70%), and were English-speaking (92%). Follow-up interviews conducted 18 weeks after admission to the program involved 335 subjects, 59% of the original sample.

The informational intervention consisted of a standard, AIDS-risk-reduction program, given in two one-hour group sessions. The program included a video, a lecture, homework assignments, and discussion. There was also a demonstration of how to clean injection equipment with bleach and how to use a condom appropriately. Participants did not practice these activities in the informational intervention. The informational intervention was offered to some subjects early in the detoxification program (5-8 days after admission) and to others at a later point (10-15 days). The enhanced intervention consisted of six one-hour group sessions followed by a 30-minute individual health consultation with a health educator. The sessions focused on putting knowledge into practice. They were specifically designed to enhance participants' self-confidence in the efficacy of their own actions.

The first analysis of the data compared three groups, as assessed before and after the interventions: the groups receiving the purely informational program (both early and late) and the enhanced-intervention group. The study of a control group receiving neither intervention had been planned, but no such group was actually included in the analysis.

Primary outcome variables measured included selected attitudes and beliefs, knowledge about HIV/AIDS, psychomotor skills (the ability to demonstrate appropriate use of a condom and to clean drug equipment with bleach), and drug-use and sexual behavior. Secondary outcomes included the results of HIV-antibody testing, the initiation of long-term treatment for drug abuse and retention in the rehabilitation program. The study demonstrated a substantial improvement in the intervention subjects' knowledge about AIDS and in their risk-reduction skills. There was also a reduction in high-risk drug use and sexual behavior. The researchers concluded that the informational intervention was moderately effective, though the timing of the intervention — early or late in treatment — was not found to be an important factor. There was no statistically significant difference in effectiveness between the enhanced and the purely informational intervention, although subjects in the enhanced intervention reported an increased confidence in their ability to avoid high-risk behavior.

Reasons suggested for the lack of a significant difference in the results of the two interventions included the high level of motivation of the entire sample group (as indicated by their involvement in a drug detoxification program) and the possibility that some of the favorable outcomes were due to other components of the treatment program shared by the subjects in both intervention groups (McCusker, et al., 1992, p.537-38). Preliminary analysis of six-month follow-up data did show a stronger effect, in the enhanced-intervention group as compared with the informational-intervention group, in reducing the frequency of relapse to injection-drug use.

In a subsequent article, McCusker et al. (1993) examined the long-term behavioral outcome of their study. They analyzed data for the study groups from baseline (admission to the detoxification program) and at a 12-month follow-up. In the period from six months to one year

after the program, there were further reductions in injection-drug use among participants, with the informational-intervention group doing slightly better than the enhanced-intervention group. There was a significant difference reported in the use of cocaine: the subjects in the purely informational intervention reported a 47% decrease in use of the drug, while the enhanced-intervention group reported only a 33% decrease. Levels of injection and other drug use at the base line was seen as a strong indicator of subsequent drug use in the follow up period. It appears that the subgroup with the enhanced intervention had greater odds of retaining the same or having safer behaviors. This may have confounded the results. The results of the two informational interventions were quite similar, indicating again that timing of intervention was not a significant factor.

One important factor, which may explain the lack of significant differences between the two interventions, has to do with the level of injection-drug use at baseline. The baseline level of high-risk drug-use behavior was the strongest predictor of that behavior at follow-up. Thus those with the lowest level of high-risk behavior at baseline continued to demonstrate low levels of high-risk behavior regardless of the intervention. This has important implications for tailoring an intervention more closely to the situation of the people it seeks to help. The lack of impact on high-risk sexual behavior — seen in both intervention groups — is in keeping with the literature that asserts that altering this behavior is more difficult than promoting harm reduction in drug use.

An effective, individually focused, HIV-prevention program was conducted by Stephens, Feucht, and Roman (1991). The intervention used the educational framework provided by a trained health educator. Subjects were provided with information about AIDS and strategies for reducing the risk of infection. The subjects were 322 street addicts who were not currently in a drug-abuse treatment program. The group was predominately male and black, with a median age of 36 years. A quasi-experimental design was used and outcome variables were measured before the intervention and at a three-month follow-up. There was no control group for comparison. The intervention consisted of a structured, individual interview. The variables measured included the level of injection-drug use, of sharing of injection works, of sharing of a cooker, of using another person's works, and of cleaning used equipment with bleach. The intervention interview took about 45 minutes. Findings from the study indicated that six of the seven types of high-risk drug-use behavior decreased in frequency after the intervention. A major reduction was reported in the sharing of works, as well as a considerable increase in the cleaning of used works with bleach. All twelve measures of general drug-use behavior showed significant reduction.

Although this study demonstrated some heartening findings, the results should be treated cautiously. The data on reduced risk came exclusively from self-reporting — unverified information from the subjects themselves who may have felt they were expected to give socially acceptable answers. Moreover, the subjects of the study were not scientifically chosen, which limits how widely the results can be generalized. Finally, the study lacked a control group that would allow for scientific comparison to discount the possibility that the results were due to chance or to other outside factors.

It has been thought that preventing persons who use drugs that are not injected from progressing to injection-drug use could reduce their risk of infection with HIV. One HIV-prevention study conducted by a preeminent researcher in addiction, Des Jarlais, et al.

(1992), looked at the impact of an AIDS-prevention intervention on a group of drug users who used to take heroin intranasally (by sniffing). The hope was to prevent them from going on to the injection of heroin.

One-hundred-four users were recruited and randomly assigned to either the intervention group or a wait-listed control group. Criteria for inclusion in the study were: use of heroin intranasally as the predominant mode of drug use, and not having injected heroin more than sixty times in the previous two years. The sample group had a wide variety of ethnicity, levels of education, and sexual orientations. The intervention was based on social-learning principles.

All subjects received basic information on AIDS, as well as HIV-antibody testing and counseling. The intervention took place in four, 60- to 90-minute sessions in a two-week period. The sessions involved didactic materials, group discussion, and active role-playing. Included was a demonstration on how to clean drug injection equipment with bleach. It was hypothesized that participation in the program would be associated with a future reduction in injection-drug use. Follow-up data was collected between 8 and 9 months after the intervention on approximately 83 of the original 104 subjects.

Participation in the program did lower a subject's likelihood of injection-drug use during the follow-up period. Seventy-five percent of study subjects also reported an increase in safer sexual behavior, though this was not associated with participation in the intervention; control-group participants also increased their safe behavior. Condom use during follow-up was positively related to both the use of condoms during the six months before the intervention and to a lower frequency of intranasal heroin use before the intervention. Previous injection-drug use and sexual involvement with an individual who injected drugs was also associated with increased likelihood of injection-drug use.

A large group of HIV-prevention programs that proved effective with the population of injection-drug users was studied by J.K. Watters (1995). Watters examined the changes in high-risk behavior — and the persistence of such changes — as well as the serologic status of heterosexual, injection-drug users, in thirteen cross-sectional surveys conducted between 1986 and 1992. Interviews were conducted with 5956 users in street settings and drug detoxification clinics. Trends in the use of condoms and bleach and in serologic status for HIV were assessed using a variety of statistical techniques. Condom use, during sexual intercourse with women, was reported by men to have increased from 4.5% in 1986 to 31% in 1992. This indicated condoms used in individual sex acts. In the declining population of drug users who reported sharing injection equipment, those who reported using bleach to clean their works increased from 3% in 1986 and peaked by 1988 at 89%. This trend toward bleach use any of the time was matched with an increase in the use of bleach every time (from 29.8% in 1988 to 52.8% in 1990). The proportion of subjects testing positive for HIV doubled from 7% in 1986 to 14% in 1987. Between the period of 1987 through 1992 the sero conversion rate remained stable with a mean rate of infection at 12% (range 10% - 14%). The stabilization of infection rates paralleled the self-reported reductions in high-risk behavior, an encouraging sign of the reliability of self-reporting

2. Methadone Maintenance

In addition to encouraging entry into detoxification programs, preventing high-risk injection-drug practices, and preventing injection-drug use in general, HIV-prevention programs have looked at methadone maintenance as one possible way of reducing the spread of HIV. The idea deriving from the concept of harm minimization, holds that participating in a methadone-maintenance program would reduce if not eliminate the practice of injecting drugs and the attendant risk behaviors of sharing injection equipment. Sorenson et al. (1994) studied one small-group, AIDS-prevention approach linked to methadone maintenance, involving 50 methadone-maintenance patients and 98 heroin abusers in an outpatient detoxification program. This study compared two trials: one for methadone-maintenance clients and one for heroin abusers in an outpatient detoxification program. Subjects were separated by treatment style and then randomly assigned to either an experimental or comparison condition. There were a total of four conditions for comparison.

The intervention was based on theoretical work from health psychology. The concepts involved included knowledge, fear arousal, the perceived effectiveness of recommended actions in coping with and reducing the threat of disease, "self-efficacy" (a person's confidence in being able to carry out recommended actions to cope with a threat), perceived susceptibility to disease, anxiety, and communication skills. The intervention consisted of three two-hour, group sessions including didactic presentations, discussions, structured exercises, homework, and social interaction. The control group received only a set of written materials about AIDS and its prevention.

Outcome variables were measured in structured interviews, before, immediately after, and three months after the intervention. Variables measured included knowledge about AIDS and attitudes toward the disease, skills in syringe sterilization and condom use, the frequency of needle use, and sexual practices.

The study found that compared to the two control groups, participants in the two intervention groups (methadone-maintenance and detoxification) had a significant improvement on four measures: facts, risk reduction practices, self-efficacy with drugs and condom use. The levels of improvement were almost the same for the two intervention groups. There were no significant group (intervention vs control) differences in needle use and sexual practices during the follow-up period for either experimental condition. This lack of difference between the comparison groups vs the intervention conditions was seen as a result of the first fact that participants in the methadone-maintenance condition had a low level of high risk behavior as compared to the detoxification clients who were still involved in high risk behaviors. Additionally with the detoxification intervention condition there were two participants who had increased their drug injection use enough to distort the overall findings. As in other studies with injection-drug users, sexual practices were much less amenable to change than were drug-use practices.

Schilling et al.(1995) tested another small-group, skill-training approach to reducing the high-risk behavior of methadone-maintenance patients. The theoretical underpinning were drawn from a variety of theoretical frameworks: social learning theory, health behavior models, and theories of expectancy and self-efficacy, relapse-prevention, problem-solving, skills-training,

self-regulation, social support, and help-seeking. The intervention began with a pilot study in 1991.

The controlled, experimental design included 91 methadone- maintenance patients. Subjects were randomly assigned to either the intervention (five, two-hour, AIDS-education and risk-reduction-skills sessions) or the control group (one AIDS-information group session). Outcome measures were focused on self-reported changes in behavior regarding condom use. Intervention subjects reported using condoms (means, 2.6 at the two-week follow-up versus 1.8 at the intake) and taking condoms from the clinic (means, 2.6 at the two-week follow-up versus 1.9 at the intake) more frequently than did control subjects. Additionally, more experimental subjects (95%) remained in drug-abuse treatment after the intervention. At a 15-month follow-up of 80% of the subjects, there was no significant difference seen in condom use or number of sexual partners between the intervention and the control groups. In retrospect, it was felt that the group leaders who provided the intervention were more effective at delivering facts and facilitating discussions than they were at training subjects in prevention skills. This may account for the intervention's lack of measurable benefit (p. 93). The researchers saw this as evidence of a need for better training of group leaders.

Yancovitz et al. (1991) conducted a third study, which investigated the effect on AIDS-related risk-reduction of a program of interim methadone maintenance. The 301 subjects were heroin users awaiting enrollment in a comprehensive methadone maintenance program. The interim intervention ("interim" refers to the provision of limited services to patients awaiting drug detoxification and treatment) included an initial medical examination, methadone medication, AIDS education, free condoms, biweekly urinalysis, and a survey interview. A control group was put on a waiting list for one month, then entered into treatment after the intervention. During the intervention period, the control group received free condoms, biweekly urinalysis, and the survey interview.

The limited intervention services were expected to reduce heroin use and the risk of AIDS associated with heroin use. Change in the pattern of heroin use was the primary outcome variable. Outcome comparisons were restricted to behavior within the one-month period of the intervention. The study examined self-reported drug use and the urinalysis data. There was no attempt to gather data regarding the sexual behavior of participants.

The proportion of intervention subjects who used heroin decreased from before, to one month after, the intervention from 63% to 29%. For control subjects, the decrease was only from 62% to 60%. At a 16-month follow-up, a higher proportion of the intervention group than of the control group was in drug-abuse treatment (72% to 56%). This study suggests that interim methadone- maintenance programs could be of substantial benefit to active drug-users awaiting enrollment in more comprehensive drug-abuse treatment programs.

3. Needle Exchange

Although there have been no randomized, controlled trials of needle-exchange programs as a way of preventing AIDS, the results of these programs are still very promising. Of fourteen studies that have examined the impact of needle-exchange programs on the sharing of syringes, ten noted a decrease in sharing and four found no significant change in sharing behavior. Of eight needle-exchange studies examining the effect of the approach on the frequency of injection-drug

use, three showed a decrease in the practice of injection, four showed no change, and one a slight increase (Choi and Coates, 1994).

One important, documented, needle-exchange program took place in New Haven, Connecticut. In this program, syringes and needles were numbered and tracked over a period of time. The returned syringes and needles were tested for contamination with HIV. A sophisticated statistical procedure was developed to assess the serologic status for HIV among needle-exchanging clients (Kaplan and Heimer, 1994; Kaplan, Khoshnad and Heimer, 1994).

From November 1990 through the end of 1992, needles and syringes were tested for HIV contamination. Of the approximately 30,429 sets in the program, 2813 were randomly selected for testing, an average of 14.5 needles or syringes per client.

The outcomes measured were the results of the HIV-testing of the equipment, self-reported behavioral variables, and demographic variables.

The percentage of needles and syringes with HIV contamination, which initially exceeded 60%, decreased to less than 45% within the first five months of the program and remained below this level through out the two-year period. The researchers accounted for this decrease with a "circulation theory" that the rapid exchange of equipment was able to reduce the possibility that any individual user would be sharing contaminated works. The study found that the timing of the exchange of used for sterile equipment was a significant predictor of the level of seropositive needles. The more quickly needles were exchanged, the less likely that the returned needles would change in terms of sero conversion. There was less liveliness that participant would share their equipment and the fact that there was no increase in number of sero conversion cases indicated that this was the result. In addition, the study found that there was not an increase in the drug-injecting population. This has been a concern often expressed by opponents of needle-exchange programs.

4. Community-Level Interventions and Programs Aimed at the Partners of Drug Users

In an effort to reach injection-drug users who are not able to — or refuse to — enter drug-abuse treatment, a series of street-outreach HIV-prevention programs have been developed and initiated. These were primarily sponsored through the National Institute of Drug Abuse, National Association on Drug Research, and other governmental agencies. Modeled on earlier efforts targeting gay and bisexual men in larger metropolitan areas, these efforts were designed to reduce high-risk drug use and sexual behavior. They rely on theories of the diffusion of innovation and social marketing as methods of changing community norms. This is done through the identification of local peer leaders and the training of these individuals to promote safer drug-use and sexual-behavior practices. Choi and Coates (1994) make references to several studies of programs that have demonstrated great potential for promoting risk reduction. For example, the study conducted by Stephens et al. (1991) noted a significant reduction in the percentage of injection-drug users who shared needles: from 67.4% at baseline to 24.3% six months after the program studied. This program involved a single session of AIDS education; its effects were set against those in a comparison group given written materials. Consistent condom use increased moderately (9%) among participants in the program.

A four-year study in Chicago, conducted by Weibel et al. (1993), reported a more substantial reduction in the sharing of injection equipment: from 100% at the baseline in 1988 to

14% at follow-up in 1992. The intervention was provided by outreach workers who were themselves recovering addicts. Findings from surveys of participants were compared with county rates for the prevalence of HIV-positive status. Seroprevalance among the study population went from 5% to less than 1% during the time frame of the study. The Miami Outreach/Intervention project has become a respected prototype of a community approach to AIDS prevention (Chitwood et al., 1990). The purpose of the Chitwood study was to investigate the effectiveness, in the Miami program, of some specific interventions targeting a specific risk group. Researchers randomly assigned groups of injection-drug users and their partners to either a standard or an enhanced intervention and followed the groups over time. Acknowledging the social nature of drug-using behavior, subjects were kept in natural groups. Natural groups were seen as those groups in which participants used drugs together. All participants received an initial assessment questionnaire including items on drug-use, needle-use, and sexual practices; knowledge about AIDS; demographic characteristics; and health status. All were given an HIV-antibody test.

Participants in the standard intervention returned two weeks after answering the assessment questionnaire for post-test counseling. Protocols from the Centers for Disease Control and Prevention and the National Institute of Drug Abuse were followed, with subjects receiving information on HIV transmission, risk reduction, prevention measures, drug-treatment programs, counseling, and other resources.

After the initial intake, subjects in the enhanced intervention attended three, weekly, peer-counselor-led sessions lasting a total of four hours. Each session focused on a particular area. Session I dealt with knowledge about AIDS. Session II focused on safer sex practices and needle-cleaning procedures. Session III gave subjects their antibody-test results and dealt with the interpretation of these results. Session IV focused on building the confidence of subjects in their ability to avoid high-risk behavior.

Participants were contacted six months after intake. Those that had originally tested negative were again retested. All participants received a follow-up interview. There were 766 research subjects at baseline, but only 486 were available for the six-month follow-up. Sixty-three percent of the injection-drug users and 76% of their partners were located for completion of the protocol. This loss — 280 subjects — is a substantial attrition. In part to explain it, researchers compared the characteristics of the baseline sample with the characteristics of those that did not continue to follow-up, but no bias was evident. Both those who began and those who completed the program were primarily male and African-American. The proportion of seropositive subjects was the same in both groups, one in three. The different intervention groups were proportionally represented (that is, 53.3% of the subjects at baseline and 54.0% at follow-up were from the standard- intervention group).

So there was no obvious explanation for the high attrition rate. One might speculate that the subjects who could not be located six months after testing may have progressed in the severity of their addiction and were no longer interested in the intervention. The high attrition rate may suggest that such programs can only work well with people who are highly motivated for treatment and whose addictions are less severe.

Keeping this limitation in mind, we can look at the findings of the Miami study. The impact of the intervention was evaluated in two ways: 1) The overall effect of the intervention

program was assessed at the six-month follow-up to determine the extent and nature of the behavioral changes that occurred; there were separate analyses for the injection-drug users and for their partners; 2) The differences seen between the standard- and the enhanced-intervention groups were assessed (Chitwood et al., 1990, p. 112).

Overall, the program was found to be very successful at reducing high-risk injection-drug use. Seven out of ten subjects reported a reduction in — or an elimination of — injection-drug use. The two versions of the intervention were seen as equally effective. There was a reduction in the use of specific drugs, with a significant decrease in cocaine use noted. Three out of four subjects who continued to inject drugs reported a reduction in their practice of needle-sharing. There was also a significant increase in those who reported not sharing other injection equipment. There was a substantial reduction in the use of non-injection drugs. Again, both interventions were equally effective in these areas of risk reduction.

The third program objective was reducing high-risk sexual practices, as measured by decreases in the number of sexual partners and increases in the use of condoms during intercourse. However, the subjects' changes in sexual behavior were not as marked as their changes in drug-use behavior.

The partners of injection-drug users also demonstrated a reduced level of risk — after the intervention — in most behavior related to drug use. Once more, the enhanced and the standard interventions appeared to bring about equivalent reductions in high-risk behavior. There seemed to be little reduction, among the partners, in the use of alcohol. Of the 180 subjects in the partners' group, 31.1% reported a reduced use and 23% an increased use of alcohol. The use of marijuana and crack cocaine by the partners was more substantially reduced. There was a reduction in the number of sexual partners (25.2%) and a modest increase in condom use, in the partners' group. More than one-third of these subjects reported using condoms more often. However, the largest proportion of the partners reported no change in condom use. As with the drug users themselves, changes in the drug-use behavior of partners was seen more often than changes in high-risk sexual behavior. This finding reinforces the importance of developing new ways to address more specifically the sexual behavior of the injection-drug-using population.

A street-outreach program of AIDS prevention similar to the Miami program was studied by Watters et al. (1990). The study compared two cross-sectional surveys that examined the high-risk behavior of street addicts recruited from detoxification clinics and street locations in 1986 and 1987. The total numbers of subjects were 438 in 1986 and 623 in 1987. Researchers used a sampling procedure that involved ethnographic mapping of the community and the use of opinion leaders. The study compared behavior surveyed before and after the intervention and did not include a control group. The two study groups — 1986 and 1987 — were determined to be similar in composition, residence, and recruitment.

The intervention used community-health outreach workers to penetrate the social circles of injection-drug users and to become agents of behavioral change. The outreach workers were usually former addicts now in recovery. They sought to use the existing social networks to offer drug users a series of behavioral options that ranged from entering drug-abuse treatment, to not injecting, to not sharing works, to cleaning used works. Additionally, they provided users with bleach and condoms. Self-reported data was collected through a standardized questionnaire.

The study found an increase of subjects using bleach from 3.0% in 1986 to 55.4% in 1987. Twenty-one percent of the subjects, after the program, reported not sharing injection equipment. By the 1987 survey, the user population saw the program's outreach workers as second only to drug detoxification clinics in being a significant source of information about AIDS risk reduction and services.

Condom use also increased from 21.1% in 1986 to 32.7% in 1987.

The project demonstrated that participants were open to information about harm-reduction and responded positively to what they saw as realistic alternatives to their behavior. Though the authors did not indicate their theoretical framework, it would appear that they operated with assumptions derived from the stages-of-change theory of Prochaska and Diclemente(1992). The creation of a hierarchy of risk reduction — from detoxification through reduction of injections, to cleaning and not sharing one's works — seems to recognize that different subjects are at different stages in their own process of change and that they are amenable to realistic interventions based on this recognition. This range seems to parallel the stages of Prochaska and Diclemente's theory: pre-contemplation, contemplation and action. The researchers saw the non-judgmental, accepting attitude and the easy accessibility of the outreach workers as crucial to the program's success.

Another innovative, community approach to AIDS risk reduction, which has been used with injection-drug users who are not in treatment, is one that mobilizes and organizes drug users to promote risk reduction and become advocates for needed services. This type of program was developed in the Netherlands and Switzerland. Sufian et al. (1991) studied this kind of approach in Brooklyn, New York.

The intervention sought to organize drug users to develop a political voice and to reduce high-risk drug-use and sexual behavior within the drug-using community. There were two strategies used. The first emphasized a casework in a therapeutic modality using group process to identify individuals. The second strategy was aimed at changing the subculture through the systematic identification and promotion of leaders. The study did not include a control group. The 368 study subjects were individually recruited from a neighborhood-storefront drop-in center as well as at various street locations. The subjects were interviewed at the beginning of the program and at a six-month follow-up: changes in drug-use practices and sexual behavior were analyzed. This study did not report on attrition between baseline and follow-up, nor did it indicate how participants were tracked for follow-up.

The mean number of subjects' total monthly injections declined from 176 at baseline to 144 at follow-up. The percentage of subjects who refrained from using shooting galleries increased from 53% to 66%. The proportion of drug-users who cleaned their equipment increased from 10% to 18%. The use of condoms during all instances of sexual intercourse increased from 23% to 33%. The proportion of subjects using bleach went from 10% to 19%. Moreover, 47% of the subjects entered drug-abuse treatment. It was felt that further researcher on this type of intervention was warranted. It was thought that the political mobilization of this community contributed to a significant change in social and peer norms regarding drug injection and the sharing of injection equipment.

The sexual partners of injection-drug users are at high risk for contracting HIV. However, it is difficult to reach this population because its members are often not aware of their sexual

partners' drug use. If outreach to this population is not specifically built into the structure of an intervention — as it was in the Miami project — then this population has to be reached at a community level: through public health clinics, ob-gyn clinics, prenatal care facilities or through drug-abuse treatment programs that deal with the partners of identified addicts.

An example of a study that takes such a community-level approach toward finding women at high risk of infection is the work of Hobfoll et al. (1994). This study examined a program aimed at reducing high-risk activity among single, pregnant women from three inner-city ob-gyn clinics in three mid-sized Midwestern cities. The program was based on Bandura's social learning theory, Hobfoll's conservation-of-resource theory, the concept of communal mindedness (the ability to make use of social supports), and elements of aversion conditioning. Two-hundred-six subjects were recruited; 57% were African-American, 40% European-American, and 3% of other ethnic backgrounds. Subjects were randomly assigned to one of two interventions or to a wait-listed control group. Outcome variables were assessed both before, and six months after, the intervention. Subjects needed to complete three of the four intervention sessions in order to be included in the study. The only significant difference between those who dropped out of the study and those who stayed was that the former were slightly more educated (Hobfoil et al., 1994, p.398).

Each of the two interventions were delivered in four curriculum-based sessions. The sessions lasted 90-120 minutes each. One intervention focused specifically on AIDS prevention. The second concentrated on health-promotion strategies in general.

Both intervention groups were provided with information on behavioral-competency training and social support. Behavioral outcomes measured by the study included safer sex knowledge, use of condoms and spermicide, intentions to buy — and actual purchase of — condoms and spermicide, and discussion of safer sex practices with partners.

The subjects in the AIDS-specific intervention demonstrated increases in knowledge and in safe-sex behavior that were moderate, but to a statistically significant degree, greater than the increases noted in the general health-promotion intervention and the no-treatment control group. These positive findings regarding knowledge, self reported behavior were found to be maintained at the six month follow-up.

D. GAPS IN KNOWLEDGE AND DIRECTIONS FOR FUTURE RESEARCH

Despite the wealth of behavioral research on AIDS prevention, there still exist important gaps in our knowledge. In addition, the methodological difficulties of this type of research requires refinements in technique and a standardization of outcome measurements to make findings creditable and comparable.

A striking example of an area in which there is an absence of scientifically based, controlled studies is in research on prison populations. Although there have been a number of prevention and education programs on HIV/AIDS conducted in correctional settings, few that meet the criteria of experimental or quasi-experimental design have been published. There are a number of considerations which make it difficult to implement a true experimental design, with randomized assignment, in correctional facilities. Beside the sensitive ethical issues involved in coercing an incarcerated population, researchers must contend with a number of bureaucratic constraints. For example, condoms and bleach are considered contraband in many correctional settings and can not be made accessible. The denial that sex and drug use even occurs in prisons can make prevention interventions impossible. The use of peer leaders is often problematic because most prisons have a regulation forbidding the return, for any reason, of persons who have been held in the facility.

There are some current studies underway with this population, though, that hold promise. One study looks at the relationship between the type of offense for which an adolescent is imprisoned and that adolescent's perception of the risk of contracting HIV (Obot, Gaiter, Braithwaite, and Mayberry, 1995). This study is examining different types of adolescent correctional facilities: those for short-term retention, "boot camps," and those for longer-term retention. Another new study involves young men in a minimum-security boot camp in the South, in which commercial sex workers are held for short periods of time. A third is studying prevention strategies in a long-term, maximum-security facility (Mayberry, Gaiter, Murdaugh, Morris, Harrison, and Cozza, 1995).

Although many studies have examined prevention programs targeted at men involved in high-risk sexual behavior and at injection-drug users, certain subgroups within each of these categories are understudied. Moreover, all of the cited studies share a consistent set of limitations. One overall limitation is that the research (e.g. on drug-abuse treatment programs or methadone-maintenance programs) has dealt with groups of individuals that are in some way self-selected. Such persons generally have a clear motivation for altering high-risk behavior. Efforts that target the unmotivated or those who are unconnected to a community, an institution, or a service provider are needed. For example, studies directed at gay and bisexual men examine programs that have been effective primarily with white, middle-aged, middle-income, generally well-educated, men with who live in large cities and have strong ties to an identified community - the gay culture. Studies are needed, such as that of Kelly et. al. (1993), that focus on gay and bisexual men in smaller cities and rural areas. Specific studies should also be directed at populations of African-American and Latino men. In the African-American and Latino cultures,

sexual acts are often seen merely as behavior and not as signs of a lifestyle. Men in these communities — even those who engage in same-sex practices — generally do not have a cultural identification with the gay culture, and so prevention programs specific to these communities need to be developed.

It is also essential that prevention studies examine strategies aimed at injection-drug users who are still active addicts, unconnected to a provider or program of treatment. In addition, prevention programs, such as the Miami project, that target interventions jointly at injection-drug users and their sexual partners should be more fully developed. While the descriptive research has clearly identified the partners, who are generally female, of injection-drug users as being at great risk of HIV infection, few programs have been developed that focus on the couple as a unit. However, research has determined that merely attempting to empower the woman, in the absence of her partner, has limited benefit, given the unequal power relationship between the two.

Several studies underway attempt to deal with the issue of this unequal relationship. One such study, conducted by Bressler and Armstrong (1995), involves an intervention that is directed toward preventing unwanted pregnancy and infection with HIV among homeless and injection drug using women and their partners. One finding of the study so far is that the intervention, which consisted of both same-sex sessions and sessions with couples, has had a positive effect on their relationship for 32% of the couples, with another 30% reporting that it had a somewhat positive effect. The intervention has improved couples' relationships in the areas of verbal communication, sexual communication, condom use, birth control, safer sex practices, and conflict resolution. Another study, also in its first phase, is being conducted by Harvey, Beckman, Browner, Rodriques-Trias, and Balzano (1995). The study is exploring qualitatively the context and meaning of reproductive decision-making in inner-city, Latino couples. The study has only completed its pilot phase and is currently refining its evaluative instrument.

Adolescents remain a particularly challenging population for prevention programs; they require additional study. The continued refinement of measurement instruments and techniques is needed. One problem noted in prevention work with adolescents is that HIV prevention is usually embedded in general sex education. This has made it difficult to identify the particular intervention or idea that has successfully changed teenage behavior (for example, do adolescents use condoms to prevent pregnancy or to prevent infection?).

One new area of study warranting attention is the attempt to intervene with prevention programs before adolescents become sexually active. Early data from studies show that prevention is often effective with youths who have not yet begun sexual activity. Studies comparing the effectiveness of advocating a delay in sexual involvement (abstinence) with the promotion of safer sex for the sexually active would also be useful.

In general, prevention studies should seek to compare the relative effectiveness of different types of prevention programs in given populations, particularly because it is felt by many that withholding treatment from a control group is unethical. Current research has indicated that comparing a standard intervention and an enhanced intervention can yield useful, valid findings. Further research that works in this way is warranted.

Coates identified a series of research needs at the Atlanta conference sponsored by the Centers for Disease Control and Prevention earlier this year (1995): additional studies of black, gay men and of Latino Gay men; more studies directed at women and empowerment issues; school based

sex education-HIV prevention; further research on couples in counseling-and-testing programs and on reproductive decision-making; more studies of effective programs targeting men and on programs designed to change attitudes and beliefs toward condom use.

A particularly challenging aspect of research suggested by Coates is applying the diffusion-of-innovation and social and peer-norm- change model to the conflicts in beliefs between the general public's view of HIV-related issues and the public-health community's recommendations. He suggested that it is important that conflict resolution be studied in order to promote prevention strategies. Developing and studying means of collaboration among all participants in the discussion — parents, service providers, church leaders, and public health officials — may lead to a resolution of some of the conflicts of values.

Current models of HIV risk behavior are based on a series of assumptions that limit their usefulness in understanding risk behavior of a sexual nature. First, most models are based on individualistic conceptualizations of behavior and fail to consider the broader cultural and social context of sexuality. These approaches ignore the way in which distal cultural forces and expectation as well as more immediate social norms and patterns in the individual's network and specific situational factors affects sexuality and sexual behavior. Second, the models are based on assumptions that sexual behaviors and encounters are controlled totally by the individual and that these encounters are always initiated under the individual's control. (Amaro, 1995; Institute of Medicine, 1994).

An important example addressed by Amaro (1995) looks at the failure of research in HIV prevention to address the issues of gender differences in intervention and effectiveness. Accordingly this author states that although current theoretical models could be adapted to investigate gendered behavior their basis conceptualization is devoid of gender as a central determinant of sexual behavior (p.440). The implication is that failure to account for a host of contextual factors particularly related to the reality of women's experience could impede the development of an effective strategy of risk reduction on behalf of women.

A promising direction suggested by Amaro (1995) underscores the importance of attending to the social and cultural factors that shape human behavior. This appreciation of the importance of context can suggest innovative ways to approach HIV risk reduction and prevention services. This author draws on the work of the Brazilian educator Paulo Freire (1970) to suggest approaches to HIV prevention that take into account the various social and cultural factors that impact behavior and behavioral change. In particular the ideas of participatory education and empowerment hold tremendous promise for the future development of HIV prevention programs.

E. SUMMARY

Since the onset of the AIDS epidemic social, behavioral and medical scientists have produced a significant volume of research studies. A review of the literature indicates a

developmental progression of theory building and refinement of technique. The first generation of research focused primarily on the descriptions of psychological factors that related to high risk behavior. Research also examined the epidemiology of HIV, the progression of the disease, the psychosocial and mental health needs of those infected, the impact of the disease on care-givers from the patient's family and social network and various ethical concerns.

In the first decade, little formal research was conducted on the outcomes of prevention interventions. Many interventions were implemented but with little thought to demonstrating their respective effectiveness. During that time prevention focused primarily on two groups with the greatest number of AIDS cases: injection drug users and gay and bisexual men with a shift over time toward a focus on specific high risk behaviors rather than on "groups at high risk." These early studies demonstrated promising changes in the rate of sero-positivity that seem to indicate the success of various prevention efforts. The question became how much of the reduction in sero-positivity was related to these prevention efforts.

There were several important issues that impeded the scientifically controlled study of outcomes of prevention efforts. The first had to do with the severity of the consequences of infection, which required an immediate response by health care professionals and service providers. This necessitated borrowing prevention models from other health arenas (e.g. smoking, cardiovascular disease) and applying them to the prevention of HIV/AIDS. Theories used in the first decade derived from the principles of health psychology, social psychology, cognitive psychology and clinical psychology. While these frameworks filled an important gap in theories specific to HIV risk behaviors, they varied in their usefulness for understanding the factors affecting risk for HIV infection. Other theoretical frameworks were adopted from social cognitive and clinical psychology. As such it has become clear through out the development of research in prevention studies of HIV that the models available may not represent an appropriate fit or that the model in use may fail to consider an important aspect. For summaries of early outcome studies see Choi & Coates (1994) and Higgins et. al. (1991).

In addition to the problems of translating theory from other health issues to HIV risk behavior, the challenges to conducting scientifically controlled studies emerged. Adherence to the criteria of an experimental design proved to be very challenging especially because ethical concerns pertaining to the use of no treatment control groups in an environment where the standard was no HIV education. Difficulties accessing particular populations, at times the lack of a comparison control group, the unfeasibility of randomly assigning individuals to treatment and control conditions, difficulties in recruitment of non-clinical samples were and are some of the challenges of evaluation research.

Another challenge for prevention efforts was the nature of the behaviors targeted for change. These behaviors are private, pleasurable, seemingly at the core of an individual's identity and in some cases illegal. It became clear very early in the epidemic that mere knowledge of the disease and its routes of transmission were insufficient to implement change and that other cognitive, affective, interpersonal and social factors were essential to fostering lasting behavioral change.

The second wave of behavioral research was more specific to HIV prevention rather than assuming that risk behaviors and behavior change in all areas of health can be explained by one general model (Amaro, 1995). The second wave of research contributed an understanding of

how people change their behaviors through proposed stages of behavior change. An example is the AIDS risk reduction model (ARRM) of Catania et al (1992) which combines aspects of the health belief model and social learning theory to describe three stages of behavior change. Another stage model (Prochaska, DiClemente & Norcross, 1992) was derived from studies with addictive disorders and involves a process of behavioral change that occurs in four stages. These theories reflected the complex nature of human behaviors involved in HIV risk and helped to guide a new generation of interventions based on frameworks specifically relevant to HIV.

This literature review focused on the outcomes studies of prevention efforts that met the criteria of an experimental or quasi-experimental design. There have been to date few carefully controlled outcome studies that met this criteria. That is not to say that important studies have not been conducted that have resulted in valuable findings, only that the validity and generalizability of these efforts come into question. The studies reviewed did indicate a number of important aspects to consider in the future development of research. A helpful conceptualization and organization of research material is one provided by Kelly et. al.(1993).

In Kelly et al's (1993) organization prevention efforts can be grouped into three broad categories: 1) The first approach emphasizes cognitive-behavioral interventions that teach and encourage the use of cognitive, social and self-management skills to change high risk behavior. 2) Interventions that focused on the changing of social and peer norms through the use of the community as represented by key opinion leaders. and 3) The approach that emphasizes a multifaceted community mobilization strategy that combines mass media, marketing techniques empowerment and community activism.

It becomes quite apparent through the review of studies that effective programs represent a combination of selected constructs from various theoretical frameworks. Some of the most promising theoretical frameworks that appear in the literature are the Transtheoretical Stages of Change (Prochaska & DiClemente 1992), Bandura's (1977) social learning theory, Rodger's (1983) diffusion of innovation theory. Additionally there have been selected constructs from the health belief model, models on self-efficacy, fear arousal theories and social influence theories that have proved useful.

One can determine, over time, the slowly increasing importance of explicit and clearly stated theoretical frameworks underlying HIV prevention. Earlier studies tended not to state the underlying theory or frameworks of the interventions under study. However, by the early 1990's, one sees not only a shift in the literature toward studies that are explicitly grounded in social science theory but also movement toward modifying, constructing and applying theories to issues specific to HIV risk behavior. As most social science theories were originally generated for settings, health behaviors and conditions unrelated to HIV it has become clear that these theories are limited in their application to HIV risk behavior. They either are insufficient for adequately explaining risk behaviors for HIV or they do not factor in crucial components that impact on behavior change. The research to date represents the application of experience in the field with the theoretical conceptualization that is leading to a more clearly refined and useful working model for HIV prevention. At least four factors have emerged as important in behavioral risk reduction. (1) the role of social and peer norms in creating and supporting behavioral change, (2) the importance of providing and practicing various cognitive and behavioral skills which foster experiences of self-efficacy, (3) the continued need to heighten

individuals sense of vulnerability and susceptibility to the illness and finally, (4) the importance of situational, social and structural factors that impact certain behaviors.

As Coates (1995) has indicated prevention efforts have demonstrated some degree of effectiveness. Studies have demonstrated that prevention efforts can lead to change in high risk behaviors and to lower sero-positivity rate. However it appears that research has achieved a certain plateau and is not at a period of refinement and revitalization. The push for further development comes from the limitations that current research has demonstrated. There are gaps leaving little information on the prevention models most effective with many critical populations. For example, young gay men, men who participate in same gender sexual behavior but do not identify as gay, studies focusing on African American and Latino gay men, adolescents who are not in school, homeless and runaway teens, injection drug users who appear unmotivated for treatment and women at high risk through heterosexual transmission.

In addition, most models of HIV prevention are based on individualistic conceptualizations of behavior and fail to consider the broader cultural and social context of sexuality. A promising direction suggested by Amaro (1995) is the work of Paulo Freire (1970) which underscores the importance of attending to the social and cultural factors that shape human behavior. This appreciation of the importance of context can suggest innovative ways to approach HIV risk reduction and prevention services.

Other limitations of past theoretical frameworks have to do with the ability to relate changes in sero-conversion directly to specific interventions or to determine how much these are a result of secular trends. There is a lack of research on the effectiveness of prevention in long term risk reduction and a need for better understanding of what is necessary to maintain behavioral change once it has been achieved. Additionally most research has been the direct application of an intervention with one population to another with little refinement and consideration of the fit between the model and the targeted population. This again may relate to the gaps between the actual experience of providers and the conceptual models being used. With this review of the scientific literature as the base we now turn to examining how prevention programs, funded by the Massachusetts Department of Public Health, have used theories and findings from the HIV prevention research to inform their programs. Through an analysis of interview data derived from a modified stratified sample of D.P.H. contracts we will attempt to determine how closely the experience in the field matches with the scientific literature reviewed.

III. SURVEY OF PRACTICES IN DPH-FUNDED HIV PREVENTION PROGRAMS

Introduction to the Study

In order to gauge the current state of knowledge about HIV prevention it is essential to be familiar with the research reported to date; HIV prevention literature was discussed in the preceding section of this report. However, it is equally important to determine to what extent theoretical and empirical data have had an impact on the implementation and practice of HIV prevention within the programs funded by the Massachusetts Department of Public Health (DPH), programs that target the populations and communities most affected by HIV infection and AIDS.

In order to investigate whether or how programs utilize existing theoretical frameworks for HIV prevention, this section of the report presents the findings from the study that we conducted of 20 DPH-funded programs.

The following three questions formed the basis for the research study:

- To what extent are the DPH-funded HIV prevention programs in Massachusetts informed by theoretical models of behavior change suggested in the literature as the most effective in the prevention of HIV?
- When programs are informed by or have as a foundation an explicit theoretical model, how does the theoretical model become translated into program components and activities?
- If the formal models that exist in the literature are not providing the basis for program design and implementation, are the programs able to articulate explicitly any other models?

At the heart of the study is the assumption that in order to be effective, programs should have some kind of framework -- a map, if you will -- that the staff can articulate and follow in conducting the program's activities. Such a theoretical framework would guide them both in developing program activities and in establishing specific services or interventions.

Research Design

In keeping with the goals discussed above, we employed qualitative methods that would allow us to understand what the DPH-funded programs were doing in the area of prevention, what their goals were, how they were achieving their goals, how they carried out their specific interventions, and to what extent they were or were not guided by any theoretical perspective, guidelines, and/or research.

Qualitative in-depth interviewing of a sample of DPH-funded programs, using open-ended questions, was selected for several reasons. First, a qualitative research design offers the opportunity to explore *in depth* the ways in which the DPH-funded programs were developed, determine their goals, and reflect theoretical perspectives. Studies that collect data only on the frequency of certain practices, knowledge, or program activities may not capture the rich context in which the activities occur. The results may not translate into information which is instructive to HIV prevention practitioners or program administrators. Second, qualitative research allows the program staff to feel their voices are heard *in their own words* rather than impersonally through an anonymous, quantitative survey. Open ended, in depth interviewing allows the researcher flexibility and sensitivity to language so that questions can be phrased and rephrased in a way that minimizes misinterpretation and adds to the validity of the data. (Pequegnat et al, 1995) Third, qualitative research permits the examination of topics and themes that might not emerge using quantitative methods based on prior research findings.

“An advantage of qualitative research is the ability to reformulate and refine research questions as the study progresses in order to pursue promising avenues of inquiry.

Because quantitative surveys usually investigate only predetermined issues, they may not offer an effective way to discover previously unnoticed or newly emergent issues.

Skepticism about the latest qualitative finding is built into the investigator’s *a priori* research design to check emerging data with previous findings” (Adler, 1990 cited in Pequegnat et al, 1995 p 105).

Finally, a review of the scientific literature suggests that a qualitative methodology is the appropriate choice. Published articles suggest that there are a broad range of theoretical frameworks that have been applied to HIV prevention, and that programs have made use of a number of constructs from several theoretical frameworks in varying combination and with varying emphases. “Early in the AIDS epidemic knowledge, attitude, and behavior (KAB) studies of different populations were important. These studies identified gaps in people’s understanding about HIV and provided critical information on the risk behaviors in which people were engaging. The data provided guidance on developing interventions and educational programs for groups that were motivated to change. This approach did not, however, provide a fertile data set upon which to develop specific prevention programs tailored to specific groups on the basis of where people gained knowledge of HIV, how their attitudes were formed, and how the behaviors took place. Qualitative studies that describe and analyze these contexts and processes represent a critical factor in translating findings into practice”(Pequegnat et al, 1995 p 106).

The benefits of qualitative design notwithstanding, it should be noted that, precisely because of the exploratory nature of the research, the findings should be interpreted as suggestive

and not definitive. While some frequencies of codewords are cited, these are not provided as statistical evidence of a certain set of facts, but rather to show relative strength of certain themes. Therefore, it should be kept in mind that the qualitative design serves to reveal the issues, dilemmas, and nuances in how HIV prevention programs utilize theoretical models in designing or implementing their programs---the design does not test specific hypotheses in the way a quantitative study could.

Methodology

Sample Selection: We used a modified, stratified random sample of HIV prevention programs in Massachusetts. The mechanism for selection was as follows: DPH gave the research team the grant applications and descriptions of 120 programs that it currently funded. Included in the descriptive information was the program's geographical location, target population, and telephone number. The 120 programs represented approximately 87 agencies distributed across the state. The research team reviewed each program description and stratified the sample by geography and by intervention type: individual, group, community, street outreach, and media campaign. Approximately 83% of the agencies were located in eastern Massachusetts, 11% were in the central part of the state, and 7% were located in western Massachusetts.

Forty-four programs were randomly selected in such a way as to retain stratification by geography and intervention type. The list of 44 programs was given to DPH for review, and DPH reduced the list to 35 programs. The nine programs eliminated did not meet the dual DPH criteria of having been funded by DPH and in operation for at least two years. Because none of the selected media campaign programs met the two criteria, media interventions were eliminated as a separate category. Because two of the community-level intervention programs were media campaigns, this had the effect of also reducing the number of pure community-level interventions in the sample.

The remaining 35 programs were grouped by intervention type (e.g., individual, group, community, and street outreach). Of the 35 programs, 69% were located in eastern Massachusetts, 14% in central Massachusetts, and 17% in the western part of the state. The research team then randomly selected five programs from each of the four intervention types. The next step was to stratify the selection to assure that representativeness was maintained according to the following criteria: urban/rural; target populations served (including primarily African-American, Latino, and Haitian, as well as mixed target populations); gender; and route of HIV transmission (e.g., sexual, intravenous drug). Given both the time available for the empirical study and geographical considerations, telephone interviews were determined to be the most effective means of gathering data. The number of programs in the final sample was reduced to 20 based on the programs' staff schedule and availability to participate in the telephone interview. Of the agencies in the final sample, 65% were located in eastern Massachusetts, 10% were in central Massachusetts, and 25% were located in western Massachusetts.

Table.1

Geographic Location of HIV Prevention Programs
in the Sample



Description of Programs in Sample

Information about the final sample's programs was available from two sources: the grant applications submitted by the programs to DPH and the interviews. The grant applications provided details about funding levels, program goals, staffing, type of host agency (if any), and expected program activities. The interviews served to confirm these details as well as to provide additional data pertinent to the research questions previously outlined.

Type of program: For the most part, the 20 programs funded by DPH for HIV/AIDS prevention were located within larger host agencies. Four were within neighborhood health centers; four were programs within multi-service centers. Two more were within a combined multi-service center and health center. Three were hosted by family-planning clinics, and one more in a combination family-planning and multi-service center. One was a program at a correctional institution, one was at a mental-health center, and, finally, one was within a national organization with a broad range of health-related programs. Only three of 20 were programs located in organizations exclusively devoted to HIV/AIDS. The majority of the programs located in neighborhood health centers (three of four) were in urban areas of eastern Massachusetts, with one located in rural western Massachusetts. The health centers' HIV/AIDS prevention programs were targeted largely to populations of Latino, African-American, Cape Verdean, and White non-Latino adolescents and adults. Programs located in the five multi-service centers were distributed fairly evenly across eastern, central, and western Massachusetts, thus representing both urban and rural communities. The target populations for the HIV/AIDS prevention programs at multi-service centers were diverse and included adolescents and adults from Latino, African-American, and White non-Latino communities. Two of the three family-planning clinics hosting the programs were located in rural areas of western Massachusetts; one was in southeastern Massachusetts. Of the three agencies classified as combination family-planning, multi-service center and health center, one was in the central part of the state and two were in the Metro-Boston area. One agency targeted primarily Latinos, another African Americans, and the third primarily non-Hispanic Whites. The three HIV/AIDS organizations were located in the Metro Boston area and targeted persons of color, persons from

various language groups, and sexually active gay men. Due to the small sample size for the correctional facility, national organization, and mental health center, further demographic information will not be provided on these agencies in the interest of protecting confidentiality.

Table 1. Agency Type and Geographic Location

Agency Type	Eastern	Central	Western	Confidential
Health Centers	3		1	
Multi-Service Centers	2	1	1	
Family Planning Agencies	1		2	
HIV/AIDS Agencies	3			
Combination Agencies	2	1		
Correctional Facility				1
National Organization				1
Mental Health Centers				1

Target populations served: Four programs targeted women and two exclusively targeted men; the rest served both men and women. The racial and ethnic makeup of the populations targeted by the programs under study was quite diverse, due at least in part to the research team's effort to ensure inclusion of programs targeting persons of color. Five of the programs targeted Latino/as either exclusively or "mostly" ; three targeted African-Americans and persons of color; one targeted Haitians; six served "diverse" populations; and five served primarily White non-Hispanic populations. The programs stating they served primarily White non-Hispanics attributed the fact to the demographic makeup of their geographical regions. Virtually all of the programs focused on adults exclusively (seven) or adults and teens (six); only one included education programs targeting children in schools. One stated that it served "women and children," while the rest served mixed populations as defined by age. When reviewed according to route of HIV transmission, the programs tended to focus on multiple or inter-related routes of transmission. Three programs focused primarily on risk behaviors related to intravenous drugs, while four focused exclusively on sexual transmission.

Characteristics of Persons Interviewed: Eleven of the individuals interviewed were women; nine were men. The goal was to interview the program directors---those most knowledgeable about the HIV programs; DPH provided the names of the appropriate individuals. In fact, 14 of those interviewed were either director, coordinator, assistant director or assistant coordinator of the funded HIV program, and three of the fourteen were specifically

director/coordinator of HIV Education.¹ Four were in the position of HIV educator, HIV manager/case manager, or health educator,² and two had the position of Executive Director or Coordinator of the host agency.³

Interview Process

Development of the Interview Guide: DPH staff and members of the evaluation subcommittee participated in the development of the guide to be used in the tape-recorded telephone interviews. Considerable effort was spent clarifying the goals of the interview, the topics to be covered, and the phrasing of the individual questions, as well as the follow-up probes. A preliminary interview guide was developed and pretested. After careful consideration of the different items and overall length of the interview, the guide was finalized. The complete guide, entitled "HIV/AIDS Prevention and Education Evaluation Project BUSPH Phone Interview," can be found in Appendix B.

Part I of the guide asked questions about the program as a whole (target population served, staffing, and interventions used in the program as a whole) in order to assess the context in which the intervention took place. Part II focused on the specific type of intervention chosen by the research team to be examined in depth (e.g., individual, group, community, or street outreach).

As seen in Appendix C, interviewers asked the respondents for specifics about the intervention, HIV risks faced by the populations served, the types of risk behavior the intervention sought to change, general goals of the intervention, and why the respondent thought the intervention helped to prevent HIV infection. Questions included in this part were designed to elicit from the respondent any evidence that the staff were aware of and/or followed a theoretical framework of some sort (whether explicit or implicit). Respondents were asked, therefore, not only for details about the *activities* carried out by the programs but also for evidence of any *theoretical foundation* that guided program staff in developing activities or in carrying out their work. Interviewers asked a series of questions designed to probe for this evidence in a variety of ways. Some were quite direct: *What is the driving force behind your intervention? What is the primary framework/model upon which your program's intervention is based?* Other questions were more subtle efforts to understand why the programs chose specific interventions and what made them effective: *Why do you think what you do works? How does the intervention help to prevent infection? Does it change something about what the clients' think, what they do, or how they act?* Interviewers also worked to draw out the respondents on this topic by asking for concrete examples of a "success story" and a "frustrating case" to gather

¹ID#s: 01 - 03, 06, 07, 10 - 15, 18 - 20.

²ID#s: 04, 09, 16, 17.

³ID#s: 05, 22.

data both on the activities used in the program intervention as well as the theoretical underpinnings of those activities.

Part III of the interview guide inquired about how the program staff determined whether the overall program or specific intervention was effective, whether specific indicators or other information was gathered, and whether any formal evaluation process was used. Interviewers also inquired about whether the program had sufficient resources. Each interview concluded by inviting the respondent to discuss topics that had not been covered and to add any comments that would help us understand the program better. Findings based on Part III of the interview will be presented in a separate report that will focus on how programs currently approach evaluation of their effectiveness.

Process of Conducting the Interviews: Each program received a letter of introduction from DPH describing the study, explaining its purposes, and asking for the program's cooperation should they be selected to be part of the study sample. Each program selected to be part of the final sample was called by a member of the research team. He or she ascertained that the individual had received the introductory letter from DPH. The purposes and process of the evaluation were explained, and the program respondent was then asked if he or she was willing to be interviewed. The research team member concluded the telephone call by stating that the interview would take between 30-45 minutes and by making an appointment for the telephone interview within a week of the initial call. At the time of the scheduled interview, the following statement made: *Our goal is to determine how these DPH-funded programs determine what interventions to use to be effective in the prevention of HIV/AIDS. We would like to ask you a series of questions that will help us to gain a sense of the specific goals of your program, how you are achieving them, and why have you chosen the interventions you are conducting. The information you share is confidential; the data will only be reported in summary form. It will not be linked by name or organization in any reports we prepare. You should also know that we are not evaluating you or your agency or organization in any way. We're conducting the interviews is to be able to help the DPH to be able to support the agencies that are doing HIV/AIDS prevention & education. Your contribution is greatly appreciated.* The interviewer explained that the study team would like to tape the interview but reiterated that the tape and transcription would be confidential. The interviewer responded to any questions and then the interview itself began. Following the interviews, the tapes were assigned an ID number and sent to a transcription service.

Study Limitations

The finding of this study should be interpreted as suggestive rather than definitive due to certain limitations inherent to the research design. The findings were based on one telephone interview rather than on direct observation of participants in the field or on observation over time. More in-depth field observations and multiple interviews over time with staff and clients would have added depth and validity to the findings.

In addition, the single programs that were the study focus were often one component of a broader range of prevention efforts within an agency. Our research method did not allow us to clearly observe how the target programs fit into each agency's infrastructure and program scheme. Although we encouraged respondents to provide considerable context for the specific intervention under study the primary focus of the interview was on a specific DPH-funded program and the specific intervention type selected for study. The narrow focus of the interview, in turn, may have narrowed the discussion in a way that affected the results.

However, given the research goal of understanding the extent to which DPH-funded HIV prevention programs are guided by existing theoretical models, this approach was *justified*. Finally, although we assured the interview respondents that their own and the identity of their programs would remain confidential they were aware that they were participating in a study commissioned by the DPH, which could have influenced their responses in a way that affected the results of the study.

Analysis

Preparation for Analysis: Data analysis in a qualitative research study such as this one on HIV prevention involves an iterative process. As Tesch stated, "Analysis is not the last phase in the research process; it is concurrent with data collection or cyclic."⁴ In contrast to quantitative research where all data are collected before analysis begins, in qualitative research data analysis begins as soon as the first interviews are completed. Early analysis shapes later data collection and subsequent data sharpen the original insights and hypotheses into findings, conclusions, and suggestions for both future research and study design.

Two primary research tools were used in this project: 1) the organizational and interpretational work of the research team to develop a coding scheme and 2) a text-analysis computer software program, *The Ethnograph*.⁵ Each will be discussed.

Development of Coding Scheme: After the interviews were transcribed, the research team began reading the transcripts to get an initial sense of the whole and then to identify topics and themes that were emerging. Team members met frequently to discuss the topics and themes

⁴Renata Tesch, *Qualitative Research: Analysis Types and Software Tools*, (New York, Philadelphia: The Falmer Press; Member of Taylor & Francis Group, 1990).

⁵*The Ethnograph*, v4.0, Qualis Research Associates, Amherst, MA, 1995.

at length, discover links between them, and to cluster related topics and themes together. We developed an organizational scheme that developed into a set of codewords to be used in coding all of the transcripts. Some of these codewords, as can be seen in the Codebook, are closely tied to the questions asked. The code called "Q09," for example, is question #9 from the telephone interview (see Appendix D); this code was a broad category designed to capture the overall theoretical framework underlying the program---the "driving force." Q01, in a similar way, was a codeword to identify segments of the interview discussing the program's target population; Q02 and Q03 include discussions of program staffing and representativeness of affected populations in the program's staff and boards.

However, other codewords were not directly tied to specific questions. Two such words were *explicit* and *implicit*, which identified segments of interviews where we discerned either explicit or implicit discussion of a theoretical foundation or perspective in the program design or implementation. The complete Codebook with individual codewords and their definitions is found in Appendix D.

Use of *The Ethnograph* in Computer Assisted Analysis: *The Ethnograph* is text-analysis software used to manage and organize interview data for qualitative interpretation. This program simplifies and systematizes the more mechanical tasks of coding, sorting through hundreds of pages of interview text, classifying segments into common themes, and retrieving segments for examination and quotation. It thus reduces (decontextualizes) segments and permits the reorganizing (recontextualizing) of segments by their common patterns.

Following transcription, the transcripts were edited on disk and formatted for *The Ethnograph*. The files were then imported into the software program----a process that numbers all of the lines. The researchers read all of the interviews and then entered codes by attaching codewords to specific segments with start and stop lines. The researchers both coded the interviews on paper and directly into the computer. They then conducted searches by single or multiple codewords.

All interviews were read and coded separately by multiple coders; inconsistencies were clarified. The output was grouped by type of intervention, and the team carefully read segments generated by themes. For example, we were able to examine everything that the interview respondents working in "individual intervention" programs had to say about the driving force of their interventions, and subsequently to compare those responses with those from respondents working in "community," "group," or "street outreach" intervention programs. Throughout the process, the research team met to interpret data, discuss findings, and to assure that the findings accurately captured the experiences of the different programs.

Findings

Interview data will be presented in the context of providing answers to the study's three research questions. We will first present findings by research question and then present a comparative analysis by intervention type. It should be noted that the numbers in brackets following an excerpt from an interview refer to the interview ID number (before the colon) and the line numbers for the specific segment quoted (after the colon).

To what extent are the DPH-funded HIV prevention programs in Massachusetts informed by theoretical models of behavior change suggested in the literature as the most effective in the prevention of HIV?

The data were analyzed in two ways to understand the extent to which theory guides practice for the programs under study. First, the text-analysis program that we used to systematically organize the interview material yielded frequencies for specific codewords. Two of the most important codewords analyzed in this way were *explicit* and *implicit*. The codeword *explicit* was attached to any segment in which the respondent articulated a specific theoretical framework or model relative to the design or implementation of the program under discussion. The codeword *implicit* was utilized, in contrast, for segments in which a framework was not named or identified as a model or framework but elements of certain models or frameworks were evident in the interview discussion. Examples of each will be presented.

The number of segments that were coded as *explicit*---revealing evidence of an explicitly articulated theoretical framework -- was only 15 from the total sample of 20 programs. Of those 15 segments, ten were obtained from only three of the programs. All three programs involved community-level interventions. It should be noted further that two of the three programs were found within organizations exclusively dedicated to HIV/AIDS work; in other words, the two HIV programs were not located within a host agency (a point that will be discussed in more depth later). Five programs had only one segment each, and 11 programs had no segments that could be coded as *explicit*. This finding suggests that a theoretical framework was minimal or absent in 17 of the 20 programs studied.

The second way the data were studied was to examine the actual transcripts with a particular focus on both the segments coded as *explicit* and on the interviews as a whole. This in-depth analysis of the transcript text supports the frequency analysis discussed above: In general, we found that only a few respondents could articulate some kind of theoretically derived framework with clear goals and a "map" to follow in designing and delivering services. In addition, as was noted, those programs tended to have HIV/AIDS work as their primary mission and not to be part of a host agency.

Occasionally, a respondent was able to name a specific model but was then unable to articulate the theoretical components of the model. These respondents also seemed to have difficulty describing any program components or activities that derived from the model.

The respondents who were able to articulate a theoretical or research basis for their interventions did not necessarily state, "We follow a Diffusion of Innovation Model" or "Our program is based on a Health Belief Model." However, they were able to state that their program activities were based on research and/or a theoretical framework, and they were able to state explicitly what the relationship was between theory/research and the program components.

When we asked one director of HIV education at an HIV/AIDS program, "*Now would you say there's any theoretical framework that makes you feel that that's the way to go . . . Where do you get that idea from?*," he stated the following without hesitation: "*It's a community organizing model*" [14:1361-1369]. He then discussed at some length what a community organizing model entails. Later in the interview he related details of the diffusion of innovation

model. How the model was implemented and translated into specific activities will be discussed in the next section.

One interview with the program director at an AIDS organization stood out from the others in terms of the respondent's ability to articulate and provide examples of how theory was applied to practice. In this interview, the respondent specifically alluded both to literature and to a theoretician in his response to the question about whether a theoretical framework informed the program under discussion: *Yes, I think that we've given a lot of thought to developing messages for men that don't create a great deal of psychological harm. . . . A psychotherapist [Walt O'Dette] out of Berkeley California. . . . He's begun a discussion. . . . A particular article in fact called 'AIDS Education and Harm Reduction for Gay Men: Psychological Approaches for the Twenty First Century' [20: 843-854].* The respondent also referred to an academic journal that publishes work on HIV/AIDS research and theory: *"I think actually it's in Harper's Magazine this month but it was previously published in the AIDS and Public Policy Journal" [20:850-853].* The interview respondent did not simply name the theoretician and literature, however. He explained the theory and ideas put forth in an article which he said had informed and guided the agency's approach and decision to use messages that are honest, positive, and promote a strategy of harm reduction. He was able to provide examples of prevention messages and program activities delivered by his agency that were consistent with this particular framework. He explained: *"Well, he [O'Dette] says that we need to be honest with men so that -- . . . one of the things he says for example is that we can't be telling men for example that condoms are great because they're not and we have to stop doing that. We can't tell men as San Francisco AIDS Foundation did at one point to be here for the cure when in fact there's no cure in sight -- that that's misleading men. We can't tell them to stop having penetrative sex. We would never tell heterosexuals that. Why would we tell homosexuals that? That there's real significance -- there's meaning to penetrative sex between two people and it's homophobic to take it away from them to tell them not to do it. So we're readjusting our messages based on that kind of thinking so here for example we're being very positive about oral sex. We're actually not telling them not to have anal sex. We're telling them just to make sure you use a condom when you have anal sex. We're taking those steps" [20:901-929].* He also noted the following: *"Yes, around the alcohol message for example what we've realized in reading the literature around whether or not there's a relationship between alcohol use and risky behavior. . . . I think we've realized that the verdict is still out that some of studies show in fact that men drink in order to have unprotected anal intercourse" [20:280-291].*

The third interview respondent who was able to articulate a theoretical framework as the basis for intervention was program manager of an HIV prevention program that was part of a multi-service center and family-planning agency. The interview showed evidence that this HIV education and prevention program was guided, at least in part, by theories of behavior change. The respondent raised the idea of behavior change early in the interview: *"Our commitment is to find ways that get youths and adults involved and folks on behavior change techniques instead of just knowledge level intervention [18:36-41].* She referred to theories of and research on behavior change simply by reviewing a wall chart in her office. When asked what makes behavior change difficult, she replied: *Yes, in fact we do a lot of research on that. I can turn around and on my wall I've got [a] behavior change [chart]. . . . So this is what research says*

... *first of all perceived risk* ... [18:788-802]. This individual seemed very conscious of the role of research in designing effective programs and was eager to share the framework on which her program was based and to explain how the framework guided program activities: "*And then this whole thing called self efficacy which is the belief that 'I can do it,' -- that I'm able to do it*" [18:865-869]. The respondent then described the various conditions that are thought to be necessary for behavior change to occur according to several theories of behavioral change.

Implicit evidence of theoretical frameworks/models:

Again, data were analyzed in two ways, by frequency of codeword and by evidence within transcript text. As previously discussed, the interview respondents did not articulate a theoretical model explicitly, but there was ample evidence that theory permeated program activities. Segments of interviews were coded *implicit* when the coder found evidence that the respondent had an implicit understanding of theory and/or research. For example, activities that showed a series of action steps consistent with a theory of reasoned action were coded as *implicit*, as were examples of a focus on skill-building consistent with social learning theory and attempts to increase a sense of susceptibility (health belief model). Because of considerable overlap, we did not code for each of the specific theories.

The number of segments that were coded as *implicit*---revealing evidence of an implicitly applied theoretical framework---was considerably higher than those coded as *explicit*. While only 15 segments were coded as *explicit*, there were 66 segments coded as *implicit*---more than four times as many. Only one interview had no discussion that could be coded *implicit* in comparison with 11 interviews that had no segments that could be coded *explicit*. Eight interviews displayed at least one or two segments of an implicit understanding of theoretical models, and 11 interviews had three or more segments coded as *implicit*. In addition, while the total number of lines that were coded as *explicit* was only 1695, the number of lines demonstrating evidence of an implicit understanding of theory was 6050. These data suggest the likelihood that, while many programs do not explicitly articulate a theory or discuss current research, their practice is imbued with perspectives derived from theory or research. In addition, while respondents may not have named specific theories, theories have clearly affected the activities that program staff implement.

Analysis of the interview transcripts themselves demonstrate the many ways that programs implicitly reflect specific theoretical models. For the most part, it should be noted that the programs were imbued with a *blend* of various theories. In other words, while it was clear that programs focusing on individual interventions tended to rely on information sharing and skill building, the same programs also gave examples of interventions clearly rooted in theories of reasoned action. The street intervention programs tended to emphasize harm minimization and seemed to be based in stage theory; however, they simultaneously carried out activities and spoke in terms of risk communication. The analysis of implicit evidence of theoretical frameworks or models within these programs is suggestive at best, and it should be considered in light of the complex ways in which programs are designed and carried out.

Individual level interventions

Persons delivering or supervising the delivery of interventions for individuals were the least likely of the interview respondents to articulate or identify any theoretical model or primary framework of their programs. However, implicit in their descriptions were evidence of interventions consistent with cognitive and decision making theories such as the health belief model and the theory of reasoned action. Components of the interventions focused on assisting individuals in learning skills necessary to reduce their risk of HIV infection in a manner consistent with stages of change or other learning theories.

In general, one-on-one interventions focused on increasing an individual's overall awareness of HIV and on increasing the sense of personal risk, a strategy consistent with cognitive and decision making theory. A health educator from a neighborhood health center explained " . . . *I don't know what makes them think that but they think they are not at risk. That's one of my focuses when I'm doing education and looking at these kids*" [09:451-459]. The clinical coordinator for family planning programs of another agency stated, "*Mostly [the written information] describes the disease, what it is and what causes it, transmission modes. . . . [and] ways to reduce, you know risk reduction methods The three basic things we would talk about [is] definition of HIV and AIDS transmission and risk reduction*" [22:429-434]. She then said, "*We have a risk assessment card which is a questionnaire that addresses different risk factors . . . it goes through different questions and it says if you answered yes or don't know to any of these questions you may want to talk further with us . . .*" [22: 465-476]. Risk assessment and the sharing of factual information about the virus and disease were at the forefront of individual-level interventions.

The sharing of information in order to increase overall awareness of risk was combined with approaches to minimize harm that are based on the theory of stages of change. A health educator at one of the neighborhood health centers told us, "*. . . sometimes people don't want to hear it so we go with the flow. There's other concerns. We start talking about that concern that's on their mind at that moment. So it's not like we're out there trying to be straight up dealers of what we have. We try to participate with that person in what their need is and then go on from there*" [09: 812-823]. The sense of wanting to provide information about risk was tempered, in this and other cases, with an awareness that what individuals can hear at a given point in time (stage) has an impact on the effectiveness of the intervention.

Skill-building exercises, consistent with social learning theory and sub-theories of self-efficacy, were also applied in strategies aimed at minimizing harm. In describing a component of the intervention she delivers to intravenous-drug users, the HIV manager at a health center focusing heavily on counseling and testing explained, "*What we do in the needle demonstration, the purpose is to show them - - - you can get infected if you just wash with water. We use red dye -- red food dye. You just rinse once and then you just flush it and then you take the water and you do it again. Because you can still see that little tint of red in there*" [16:571-583]. The prevention case manager delivering HIV-prevention services at a multi-service center described how she applies skill-building techniques in assisting clients to communicate with their sex partners in order to reduce the risk of HIV infection. "*We do a lot of role playing with clients. And it's important because when you just give somebody information like I said it doesn't sink*

in. You really need to break it down to a level that they understand. And so we do all sorts of role plays with them. . . we give him an example, okay, we're a couple - - we're this -- I want to use condoms and you don't . . . " [17:838-848].

Group level interventions

Practitioners of group-level HIV intervention, like those providing individual-level interventions, did not tend to explicitly articulate models, theories, or frameworks on which their prevention programs were based. However, evidence was implicit in respondents' descriptions of their HIV-prevention programs that group-level interventions contain elements of cognitive decision making theory, social learning theory, and theories of interpersonal relations. The descriptions of program goals, content, and activities demonstrated an implicit understanding of theoretically derived concepts of behavioral change related to health. In addition, the group-level interventions incorporated concepts consistent with theories of interpersonal relations.

Although none of the respondents explained why HIV prevention efforts were delivered to groups, their descriptions of the interventions reflected an implicit recognition that learning and behavior take place within a social context. Thus HIV-prevention information and skill-building exercises were delivered, not by providers in a clinic as they tended to be for one-on-one interventions, but via client social networks such as peers, family, and neighbors, and often in community settings.

The HIV program manager of one multi-service center explained, "*Basically we do [group education] wherever and whenever we can. We'll do church groups, religious groups, . . . We also developed a program for parents on how to speak to your kids. . . . We do some work place stuff. . . We've done several events . . . they're half day training for the clergy in the county" [02:590-605].* In reference to a peer-education program for inmates of a correctional facility the same respondent said, "*They were making lists of all the things you can do. One of the inmates said you know all of the things that you're listing here used to characterize people as 'teases.' And they then moved into this very, very wonderful discussion around how intercourse-oriented our society is. And that in fact you know perhaps this is something that people should really look at. . . . We focus on condom usage but maybe we need to focus more on mutual masturbation. . . "* [02:1266-1280]. Safety net parties, which are held in clients' homes, are another intervention in which messages are delivered via social and family networks. The coordinator of safety net parties for a neighborhood health center serving Latino/as explained that HIV-prevention information provided to clients in their own homes is appealing because "*The Latino community's kind of picky in regard to when you talk about sex. But I found out that some mothers, single mothers or parents in general, they are bringing their kids [to safety net parties] to listen" [04:357-362].*

We found evidence of social influence theory as well. An HIV program manager who developed programs for teens used videos that included people "like" those they were targeting with the sense that individuals can relate to "*people like them*": "*What we really work to do is humanize -- this is real. We use videos. It's engaging. It helps the kids to connect. . . . There's one new video, in fact, we use for teens . . . and young adults. . . . The title is, 'Just like Me,' or something like that and it's a series of interviews with people who have HIV or AIDS, and it's*

very effective" [02-1150-1160]. The coordinator of safety net programs communicated in a way designed to influence how clients saw themselves. He said, *"There's something else that I tell them, that they are very, very important human beings. It doesn't matter if they are . . . poor, they are rich, whatever, they are very, very important"* [04-881-887]. Support groups are used by one HIV/AIDS agency to deliver prevention and education and as a means to change and influence community norms toward people who are HIV positive: *"From this group we have peer leaders. I think the goal is to try and cultivate more of a consumer board type, of people who would sort of be out in the community with their HIV status and open. . . ."* [07:653-658].

These last two respondents simultaneously highlight programming that seemed to derive from self-efficacy and social learning theory. The HIV program manager who spoke about the videos from a social influence perspective gave an example that seemed to be firmly based in self-efficacy: *"In one case on two or three occasions, I had the opportunity of having women . . . they brought their boyfriends or partners here to be tested because they were not going to have sex acts unless they go to be tested for the HIV virus"* [04-798-806]. The HIV services coordinator who spoke about peer leaders shortly afterward described the encouragement she and her staff give to help women negotiate with their partners around prevention: *"We try to encourage confidence and negotiating with partners, and confidence to disclose, and those kinds of things"* [07-708-712].

Theories of fear/motivation and emotional arousal were evident in the following quote from the respondent in a correctional setting: *"I'm going to have to say that it's strictly scare tactics"* [15:712-714]. At times it was clear that sources of intervention can be multifarious---and contradictory. In the following segment, the woman whose program conducted groups for teens using videos, showed how a combination of fear-arousing communication might go hand in hand with risk communication: *"I did a group of teenagers just last week. And we were just sitting around and I was answering their questions and they were sort of forced to be in this group. And I just said to them what you're asking is what do you think would work best with young people around . . . changing behaviors? And it was really interesting what they what they came up with. And basically what they were saying is scare us. Now I don't agree with that particularly. I mean I don't personally think that we need to scare people. But basically that's what they were saying was put it right in our face and maybe and maybe that'll work. Because one of the kids who was a very articulate boy said you know we have the information. We know. But we just do what we want to do because we really don't think it's gonna happen to us"* [02:1188-1212].

Street Outreach

Although the theoretical models or frameworks upon which street-outreach programs are based were not articulated explicitly in the interviews, we again found implicit evidence of concepts similar in theory to those found in the individual- and group-level interventions. Such concepts included learning theories, particularly stages of change and theories of self-efficacy. In addition, elements of information-based theories, such as theories of risk communication, reasoned action, and the health belief model, were found combined with self-efficacy approaches in an effort to reduce risk. The director of one multi-service center targeting Latino/as told us,

"There are instances like if we see someone who had come in for services and the person's using, has a substance problem, and is going through a relapse that we might see them outside and they just try to ignore us. So we respect that and we will just say like if you need any help we, we won't push it. We won't try to ask the person on the streets why haven't you been to the agency and things like that" [01:632-643].

Another person interviewed from a family planning agency explained, *"The intervention is actually distributing condoms so that the young people actually have the materials that they need or the bleach kits, depending on what behavior we are talking about. We give them information so that they know why to use it, they know how, what the correct way of using these materials is and . . . we would have a discussion with them which hopefully would change their attitudes and beliefs in some ways so that they would make some sort of change in their behavior in terms or actually using these materials and using them correctly" [03: 524-541].*

Street-outreach programs were more likely to be staffed by members or former members of the targeted communities, an approach consistent with theories of social influence. One person interviewed from a family planning agency noted *" . . . when we have an outreach worker who has been drunk and arrested in practically every bar in the county who knows all the police all the bartenders all the bar managers and most of the patrons because he used to drink with them and or because they used to arrest him I mean this is somebody who knows inside out and who is on the street as one of them But when people see this guy coming down the street they don't look the other way. He looks like them, he dresses like them and he has been one of them in every other way" [13:594-610].*

Street-outreach program respondents were more likely than other respondents to talk about the psychological factors that might influence risk behavior in their target groups. For example, one person from a multi-service center servicing Latinos told us he believed it was important to *" . . . not only validate but to try to understand what it means to that person . . . not having safe sex in terms of what it means to someone to have unprotected sex. Does it mean closeness? Does it mean some other thing?"* It was important to, he said, *" . . . go into the psychological aspects of it and not only focus on the behavior" [01:439-449].*

An HIV program coordinator, in reference to the gay male community, also addressed psychological issues: *"Well I guess that goes along with the fatalistic view of the gay community with HIV. 'Everybody tells me I'm-- you know, gay people are infected so I might as well be infected,' . . . [06:543-547]. " I think really getting people a sense of not having a fatalistic view on it but to be realistic, people are living 10, 15 years without symptoms and some longer with symptoms so it's one of those sorts of situations where you try to educate people" [06:555-562].*

Community level interventions

Community-level HIV prevention interventions were delivered through media advertising and poster campaigns and public education campaigns via presentations at health fairs, schools, and community groups. Social and recreational events, such as gospel concerts and boat cruises, organized for specific subgroups within the larger community were also used to increase awareness and educate groups about HIV/ AIDS and practices to reduce risk. Two

agencies, a neighborhood health center and a multi-service center, viewed their community-level intervention as being made up of several different multi-level programs such as street outreach, safety net parties, and public information campaigns.

Community-level interventions were most likely to show evidence of explicit use of theoretical models or frameworks. In addition to the explicit statements discussed earlier, respondents seemed to be implicitly influenced by theories of social influence, learning theories, and with cognitive and decision making theories such as the health belief model and theory of reasoned action. For example, the director of HIV services at one agency said they are attempting to saturate the community with HIV prevention messages, consistent with a social marketing approach. *"We are part of the safety net program. We do street outreach, we do community drop off site programs, we do in house and community wide health education. We do site specific prevention education with various other established organizations in our catchment area and then we provide a wide array of primary care and direct services to people that are HIV infected and have AIDS"* [10: 179-190].

A respondent from another agency, a neighborhood health center, explained how elements of the health belief model are applied to HIV prevention efforts: *"We actually have done a lot of work around perceived risk. We use educators with HIV all the time as much as possible. The research as well as our guts say that works because basically I see you. You look like me. It can happen to me too. . ."* [18: 1058-1072].

Theories of social influence and the diffusion of innovation theory, designed to change community norms through key opinion leaders, were clearly evident in the prevention strategies of both AIDS organizations. *"Basically it's [the poster campaign] is going to be showing up in restrooms actually in gay bars for about eight months. It's a very long term community level intervention. That's a kind of media campaign type flavor. We're also doing a conference on -- a summit actually on prevention in the gay community. HIV prevention in the gay community where we're bringing together about a hundred and twenty five men from various professions and backgrounds who are considered to gay leaders in Massachusetts in order to raise awareness and to mobilize the community around AIDS prevention issues and so that's kind of a key informant type of -- or key opinion shaper type intervention"* [20:3-23].

In another agency similar strategies were implemented via a community organizing model: *" . . . with the African American community . . . one the main projects that we've done in the last two years has tried to address the church community. This has been as I said it's kind of a community organizing model in that we have brought together individuals from that particular community to work with our staff member on a steering committee to kind of guide some of the activities and devise the strategies and kind of what their purpose is and ass of that"* [14: 327-344]. He continued: *" . . . we're talking about a community, or a church community that really has kind of avoided HIV, the issue of HIV. So really it's about kind of just beginning to raise the level of awareness. To make it acceptable to kind of talk about it because there's all kinds of moral questions that come into when you talk about that in the church. And there are people . . . we want them to at least begin to think about HIV as an issue that affects everybody, that is really affecting disproportionately the African-American community and the church can play . . ."*

a leadership role within the community but can play a leadership role with the prevention of transmission as well as . . . the compassionate care for those who are infected" [14:861-882].

The director of HIV education and community relations at a community-level intervention program was able to describe certain principles that guided the work at the program. While he termed them principles, the theory of reasoned action clearly permeates them: *"It's so awesome and basically it says there's like six things that have to happen before someone can contracept or contrainfect [it takes the] same skills effectively and I'm going to find this sheet if it kills me here and it's so interesting because it's not easy. So one is they have to make a decision to have sex. So then there's that whole thing back to your question as why don't people do it? It gets back to around decision-making about sex and how huge that is"[18:900-967].*

Practitioners of community-level interventions were the most likely to describe and articulate, in an explicit way, the specific theories, models or frameworks on which their HIV prevention programs were based. They were also the most likely to talk about current scientific research literature and how it guided or was integrated into their practice. The behavioral theories both explicitly and implicitly expressed by community-level prevention practitioners included cognitive and decision making theories, learning theory, and social influence theory, particularly diffusion of innovation and social marketing. Our findings also suggest that many of the essential principles of prevention practice, recommended by the Centers for Disease Control, are valued and practiced by the community-level practitioners we interviewed. These principles included an individualized approach to prevention, innovative and culturally sensitive programs, and cognizance of psychological issues and the underlying social realities of people's lives.

How Theoretical Models are Translated in Program Components and Activities:

When programs are informed by or have as a foundation an explicit theoretical model, how does the theoretical model become translated into program components and activities?

As indicated earlier, the respondents for only three programs selected to be interviewed were able to clearly articulate a theoretical model as the underpinning of their prevention and education efforts. Two of the theoretical frameworks were similarly drawn from the diffusion of innovation framework. The third demonstrated the components of the health belief model. We now turn to examining how these models were translated into activities and components of the prevention and education projects. For the sake of clarity the two projects involving the diffusion of innovation model will be discussed together by noting the component of the model and how it was translated into an activity. This will be followed by an examination of the health belief model.

There were two community prevention and education programs that utilized the diffusion of innovation theoretical framework. It should be noted that one of the respondents stated that the model used was the *"community organizing model"* [14:1361-1369]. The other respondent, when discussing who was developing their community/media materials, made the following statement: *"It's the firm is this public health advertising -- it's a public health message firm basically"* [20:391-393]. However, the programmatic features of both were clearly based in a diffusion of innovation model.

One project targeted communities of color, African-American and Latino, and particularly those members at highest risk for HIV infection: intravenous-drug users, women, and those who participated in homosexual behavior within the African-American and Latino communities. The second project targeted sexually active, young gay men who frequented particular gay venues throughout the state---bars, adult video shops, and sex clubs. While these are two very distinct projects targeting specific communities, it should be noted that they are administered by the same AIDS service organization. It is not then so surprising that they are both informed by the same framework, the diffusion of innovation model.

One major aspect in the application of the diffusion theory lies in the reliance on target group participation in all aspects of the process. This involvement is seen as critical for the success of the intervention and seems clearly present in the interviews with the respondents of the two cited projects. For example, the respondent for the project targeting young gay men stated, *"I have my staff-- the gay male education staff plays kind of an advisory function and then I have an advisory group of ten -- it's a volunteer advisory group of ten professionals who are considered to be experts in prevention and they give me feedback on the development of the messages as we go along"* [20:123-132]. In addition to the professional advisory group this project involved the targeted population itself through focus groups: *"Now we did have focus groups in the development of this project where we held four focus groups where we recruited men from the venues themselves. We recruited men from gay bars and sex clubs and places like that to come and be part of the focus groups. There was one focus group that was a mix of men who believed themselves to be HIV negative. There was another group of men who knew they were HIV positive. There was a group of young gay men under twenty five and another group of men from communities of color"* [20:143-159].

The program that targeted communities of color was somewhat more complex because it needed to involve very distinct subgroups: *"Because there are some volunteer groups that work. There is a volunteer there are some steering committees that work on the community organizing model. There are steering committees that work for the community that kind of help guide particular programs"* [14:250-258]. He also stated, *"The steering committee were people who were brought in as a result of contacts of our staff. So the staff would go into the community find people who they might know or people who they know might know and they will begin to kind of build a grassroots committee before they even put any initial event together"* [14:1273-1282].

In working with the African-American community the program targeted the religious bodies and created a committee of key leaders: *"So she went to some of her friends talked to people and tried to build a committee that included church elders, church ministers' wives of church pastors and brought in a group of like ten or twelve people. And since then the group has grown has kind of developed because the events have brought in other people. And word of mouth has grown"* [14:1293-1303]. When working with the Latino community the project also included individuals from the targeted group, e.g., young Latino gay men, in the steering committee and program staff positions: *"Our Latino HIV education specialist has worked with the community of Latino gay men and has put together group of men primarily young Latino gay men into and they also kind of on the same community organizing model have met regularly as a*

steering committee and have designed kind of activities, some of them kind of real community-level activities" [14:446-456].

Instead of "professionals" who "target populations," this program included the voices and experiences of the "targets" themselves when the staff translated theory into program components and activities. For women, the project built on a media campaign that made use of focus groups and extended women's involvement in a series of safety net functions: *"And then we have worked also with women in terms of the safety net which is we've trained women from the community to lead HIV kind of one-on-one or HIV basic presentations which give. . . . And they go into homes in the community. . . . And they go into a home with a group of women or a family in the right into the community and they present their information in the home based party and that information then is hopefully utilized and spread"* [14:415-433].

With regard to the drug-using community and those in recovery, the project also utilized the target group in translating a vision of HIV prevention into practice: *"The addiction community resource developer does works with the group I told I alluded to earlier which is C _____, an outreach volunteer team"* [14:508-512]. . . . *"they work with another community which is the recovery community. And with the recovery community they hold the community interventions that they've done that have been very successful are kind of social recreational/educational events. We call them sober events"* [14:539-547].

A second key aspect of the diffusion theory involves the communication of the innovation through a number of channels. Both projects demonstrated this varied approach. The project targeting communities of color and using the African-American church community is an excellent example. The associate director of HIV prevention at an AIDS organization explained, *"Well I suppose what we've done is we've tried to and say with the African-American community we've tried to address -- one of the main projects that we've done in the last two years has tried to address the church community. And so we have started a program called the AIDS M_____ . And this has been as I said it's kind of on a community organizing model in that we have brought together individuals from that particular community to work with our staff who work with our staff member on a steering committee to kind of guide some of the activities and devise the strategies and kind of what their purpose is and all of that. And they've, they've done that and they've moved on to doing some community-level interventions like they held a gospel concert that was for the church community. It had about five hundred people in attendance. And we have another planned for two weeks from now. And from that have grown some other kind of smaller group things that have occurred at the church level working with church organizations in terms of HIV presentations and things like that as well as kind of prayer partners thing that works with people who are living with AIDS within individual church congregations"* [14: 326-362]. Furthermore, the respondent stated, *"Well. . . then I would also . . . say that we've with the African-American tried it's again it's kind of like it's hard to separate sometimes what we might call like affecting a full community but they're small group presentations. Our Safety Net program which is both our Latino and our African-American has been has been affecting families in the community and has been in conjunction with our media campaign which is targeted at primarily women of color"* [14:369-383]. From the segment text, one can discern the various channels of communication that this program utilizes: media, small

group, one-on-one encounters and large community events to reach the members of this particular community who are at high risk for contracting HIV.

A third important component of the diffusion of innovation model involves a series of attributes that contribute to the success of the intervention. The attributes will be listed followed by an appropriate citation. The two media campaigns directed toward sexually active young gay men and toward women of color seem to capture all of the attributes. The seven attributes are compatibility, flexibility, reversibility, demonstration of relevant advantage, complexity, cost efficiency, and risk. (See Appendix X pages xi-xii). Citations from the two projects demonstrate these aspects. First, the young gay men's media campaign:

"There will be ten specific messages developed on a number of different topics related to safer sex or risk behaviors among gay men and these ten messages will be displayed in gay venues across the state of Massachusetts (compatibility, flexibility). For the most part they'll be in gay bars and more specifically in restrooms in gay bars hanging above urinals and in stalls and each of the messages will hang-- there are ten different messages. They'll be in frames in these places. They'll be laminated posters a little larger than letterhead-sized paper. They'll be visually appealing. There'll be banners that kind of bring you into it and then there's a little bit of reading. By our testing the reading can be done in less than three minutes and that's about the time it takes for them to actually use a urinal so we've carefully kind of thought about those things (complexity). The messages will be changed in each of the venues approximately every month so that men who goes to certain bars regularly will wind up seeing over the course of about eight months of the campaign although not every message will be target to every person in the bar (reversibility, risk, relevant advantage). Over the course of the campaign we'll try to do some evaluations" . . . [20: 329-364].

"We're actually hiring an independent consultant to travel around to all the sites and it won't just be in bars. It will also be in the sex clubs and porn shops in Massachusetts. In the porn shops it will be in the video booth. We're trying to get them signed on now. In P_____ the campaign will be more intense. It won't last eight months. We're trying to match up with the tourist season there so the campaign will be released in June there and end in September where the rest of the state will beginning in June and ending in February." (compatibility, flexibility, cost efficiency) [20:398-415].

"We have two messages that are trying to address whatever the relationship is between drinking and unprotected anal intercourse so we're looking at multiple factors not just unprotected intercourse but the role of drinking (complexity, reversibility). We're putting out two messages that are trying to clarify oral sex as a safer behavior compared to anal sex (risk, relevant advantage). We have another two messages that are trying to build some self-confidence -- let me put it a little differently. We have two messages that will address HIV negative men specifically and they're messages like stay negative and it's not an accident that I'm HIV negative so it's trying to set up some role models for HIV negative men that it is in fact possible to stay negative over the course of a sexually active

life and one that says stay negative is trying to bridge the gap between HIV positive and HIV negative men because the man who is speaking in this campaign is an HIV positive man and he's just saying he knows what it's like and he knows the difficulties in protecting yourself all the time but that he really wants us the community to stay negative as much as we can so it's again role modeling around being HIV negative" (relevant advantage, risk) [20:551-586].

The media campaign directed toward women of color also seems to entail the seven listed attributes for the diffusion of innovation theory:

"OK. I would -- I would guess -- for both the Latino and African-American try to focus on the community of women and broadly and so one of the things that we did over a period of the last year is we devised a T ad campaign and a campaign that was used on T platforms and in the T cars (flexibility, cost efficiency). And also utilized at battered women shelters and health centers and various place to reach the target audience which of course is women (compatibility). And we came up with a poster campaign of about eight different messages and four of which are translated into Spanish (compatibility). And they were-- and that was one community-level on primarily women of color both Latino and African-American. And addressing different kinds of issues. Everything from condom use to the relationship between battered women and battering and HIV infection to other kinds of . . . relationship questions" (risk, relevant advantage, reversibility) [14:390-415].

A final key aspect of the diffusion of innovation theory is related to the strategies that are designed to redefine social norms or standards: Again, the messages that are expressed in the two media campaigns demonstrate changing of social norms regarding HIV and high risk behavior. For example, the following segment is from the respondent of the gay men's campaign:

"We have two messages targeting gay men under twenty five years old. In fact we're even looking at the sub population that calls themselves 'queers' in this and so we have messages that were developed by that population for that population that are much more sexually explicit and use different kind of language have a different kind of look than the others. We then have two messages specifically targeting men from communities of color. Now that's not to say that the other ones don't. There are some men of color depicted in some of the other messages but these two are very much targeted. One is for African-American men just to try to build some sense of self esteem among gay African-American men by holding up role models who are gay and African-American and the other one is for Latinos who either do or don't identify as homosexual except there is a play on words in this message that is in Spanish that could either be read by a man who considers himself heterosexual but is engaging in anal intercourse with women. And then there is one message that we hope we can afford it but we're not quite sure we can yet-- which is just a message for the subgroup of men who are kind up all night in the sex clubs and really doing the scene very fast paced life" [20:586-626].

An example from the project directed at communities of color demonstrates how the project is attempting to change social norms: *"Well, we're talking about the church in the African-American community we're talking about a community or church community that really has kind of avoided HIV the issue of HIV. So really it's about kind of beginning to raise the level of awareness to make it, is to kind of to make it acceptable to kind of talk about it because there's all kinds of moral questions that come into when you talk about that in the church. And there are people are-- we want them to at least begin to think about HIV as an issue that affects everybody that is really affecting disproportionately the African-American community and the church can play a very, plays a leadership role within the community but can play a leadership role with the prevention of transmission as well as compassionate care for those who are infected"* [14:859-88]). . . . *"Because we are, because as a result of that, as a result of say a large-scale program community-level intervention like that, what happens is, then that is then that we have the kind of circle grows and the support from other individual churches begins to kind of appear to be develop and has developed since we started the program so that more ministers are interested in it, are willing to talk from the pulpit about it and that's a very strong kind of message when it's coming from a church leader. And then also that we've done things within the church community to educate youth groups and other groups. We did a minister's wives kind of training that have come out of that as a result of the interest developed during community-level interventions."* [14:924-948]. . . . *"when you look at risk groups within any given population or if you look at the African-American community we know that drug users and sexual partners of drug users are at risk as well as the gay community which is a segment of that populations. So it kind of becomes it has to be something that they look at or deal with when we--- but we don't-- we talk about the fact that we can't we should not be prejudiced about anybody. And I think in a community-level intervention it's probably the important part the important--- it's a unifying theme. It's kind of like saying we're all in this community together whether we're gay straight using drugs or whatever and we need to reach out and help people"* [14:998-1022].

The diffusion of innovation also involves select constructs from other theoretical frameworks. These are particularly designed to enhance self-efficacy, implement an action step, and make available the resources necessary to change a behavior. An example drawn from the project targeting communities of color that focuses on the drug-using community demonstrates these additional components: *"And they do a couple of different kinds of outreach. They do outreach in conjunction with the needle exchange program. So that's a street outreach. In the vicinity of where the van is they, they help to distribute information and education addicts . . . addicts on safer injection guidelines and things like that. And also encourage them to use clean needles and use the needle exchange program. Then there is then they also work with public housing to do outreach during the summer at public-- and this is like a collaboration of like probably a dozen or so agencies including the Boston Public Housing and ABCD and various health centers in the areas in which they're working to hit the public housing sites during the summer when people are out and about"* [14: 512-534].

Another example of incorporating components from other frameworks comes from the women's media campaign: *"So it kind of it focuses people on something that might be real in*

their lives or something that's real in the lives of someone they know. And then it add then it provides them with some information about what to do with that if you're faced with the problem and you don't know what to do" [14:816-825]. . . . "If they feel they need additional help with it they can call. And our hotline is was our hotline staff was in-serviced on calls. They were given a list of options to give women who called and the kind of things that they could do" [14:837-84].

The third respondent who specifically articulated a theoretical framework underpinning their HIV prevention efforts is part of a project located in a combination multi- service, family planning agency. The agency provides a general education service to the entire community specifically focused on reproductive decision making and contraception. It is no surprise that the HIV prevention service is extrapolated from the theoretical framework that informs contraceptive work. Though the respondent was not able to state the framework, she did list the principal aspects of the health belief model. The five elements are perceived severity of condition, perceived susceptibility to the condition, assessment of benefit for change, analysis of cost/barriers to implementing change, and readiness to take action and environmental conditions (See Appendix X, p. ii). The respondent stated the following:

"I stole that from the people at Planned Parenthood. I worked there forever as well--- is this contraceptive process and I'm trying to find this sheet because it's so awesome and basically it says there's like six things that have to happen before someone can contracept or contrainfect same skills effectively and I'm going to find this sheet if it kills me here and it's so interesting because it's not easy. So one is they have to make a decision to have sex. So then there's that whole thing back to your question as don't people do it? It gets back to around decision-making about sex and how huge that is. Here we go. Because if I have decided to be sexually active obviously it's not conscious. For whatever reason 'I'm an adult with guilt issues,' 'I'm a teen with empowerment issues,' -- whatever -- so just sexual decision making is a barrier in general. Also the whole recognizing the possibility of pregnancy so just that the rates-- just lack of information about how likely it is that someone gets pregnant through certain active intercourse or something--- the chances of infection. I don't think people get that. Also communication skills so somebody must be able to talk at least one or two people around sex and around birth control to be able to do this whether that's the counter person to buy the rubber certainly your partner so it's lack of communication skills. It's also just lack of ability to obtain a method so if I'm a teen that might be getting a ride that might be money in my opinion like I can't afford it.....[18:895-94] "Right and that might be perceived barriers or real barriers and they're different for different people and that's why we go on the street with rubbers for that reason. Also to keep contraceptive available so for teens that's real risk too because it's like 'Where am I going to keep this rubber without my mom seeing it,' and that's huge. And just the skill in using it properly and regularly so skill is different than knowledge but actual skill of using it which can be challenging for adults as well and how we're dealing with a lot of-- talking to men more about what happens--- new direction and that's very--- and what are you going to do and this is a skill..." [18:945-966].

In this organization, activities that implement these principles are varied and extensive. This project attempts to reach the entire population in a particular location. They appear to adapt the messages to the audience and communicate a set of messages designed to heighten awareness of risk, the severity of the risk, the barriers, and the action steps that individuals can implement. The following quotes illustrate these. With regard to location this project delivers services in street outreach, public health fairs, schools, homes, agencies, and through the use of the media. Techniques involve interactive educational participation and referral to appropriate resources. *"So basically we do general community education and that would be we would go anywhere we possibly can to do presentations on HIV. Typically anytime we go in to do any education our focus is interactive in finding innovative ways to not only give information but change behaviors so that's our commitment is to find ways that get adults involved and folks on behavior change techniques instead of just knowledge level intervention."* [18:28-41]. She further stated, *"So for instance we go into elementary schools we go into middle schools and high schools hopefully throughout the whole North W----- County. We go into agencies that work with youth and adults that are just in the community. For instance we go to Mass Job Training we go to the YMCA we go to the H_____ Center so that's sort of community based We also go to alternative schools . . ."* [18:48-62].

The presentations, workshops, and health fairs that are provided by this program are designed with a series of messages to heighten awareness of the severity of the issue and the susceptibility to the risk: *"I would say ignorance which-- now I think schools-- it depends on the population. School students are not so ignorant. They've been bombarded with facts information so for school populations it would be more like a sense of invulnerability so for them it feels we're trying to say it can happen to you but information is not enough about vulnerability -- personalizing the risk. For adults in the community it's a lot about ignorance as well as personal life with both so in general it's that we don't think that it can happen to us period. For students they have the information but I think with adults we find that they are partnered with ignorance so not only do they not think it can happen to them but a lot of them really still don't know....."* [18:531-552].

An example of attending to the assessment of benefit for change is found in the following segment: *"On the street right or on the street so basically again it's possible to protect yourself. You can do it. It's prevention behavior. It's not impossible and it can be fun and cool and erotic that there are agencies that can give you the resources you need whether that be testing case management or family planning services and when I say family planning I mean spermicide condoms HIV prevention stuff and that you have a right to do that."* [18:512-524].

The transcripts also contained attempts to address the perceived barriers to behavioral change: *"We've come up with these messages actually officially so I'm going to grab the folder. One is you have the right to protect yourself so I guess that's -- empowerment for women seems to come up a lot because that's a lot of our-- especially with the Safety Net work so not only do protect yourself but you have the right to do that, that there are resources available to help you and...."* [18: 479-490]. . . . *"It goes back to the question about why people are at risk and then there's the whole piece about negotiation around power . . ."* [18:91-94].

The same program focuses on action steps to implement change: *"So that would be condom use consistent correct condom use. That would be abstinence if chosen so informed*

empowered decision-making. That would be negotiation skills. That would be STD recognitions as symptoms as well as testing and treatment." [18: 350-358]. . . . "Well I developed it when I got here so it's called "Where to Turn" and it's basically anywhere from drugs and alcohol family planning to financial gay lesbian bi-sexual medical emergency other counseling parenting support rape abuse et etcetera from Spanish speaking services so it's very broad" [18:761-769].

Finally, this program appears to be sensitive to issues of social environment: *"Who knows and I think we fell short sometimes in changing behavior for a lot of factors like poverty hopelessness desire to live cultural norms things so sometimes the department stops and thinks "Well okay we're going to try to help women into negotiation skills," and then we realize that might be impossible. Maybe instead we want to focus on letting them at least realize they're at risk instead of-- so yes and no and it's become a process too sort of changing what our goals are to become more realistic because there are so many other factors" [18:1191-1211].*

These are a few examples of how the three programs with multiple *explicit* segments in the interview had attempted to implement activities predicated on an articulated theoretical framework.

We now turn to those organizations whose respondents did not explicitly articulate a framework, but whose programs seemed to have certain implicit constructs from theoretical frameworks.

Alternative models generated from experience:

If the formal models that exist in the literature are not providing the basis for program design and implementation, are the programs able to articulate explicitly any other models?

Most of the 20 programs studied did not demonstrate evidence that activities were based on a theoretical framework which interview respondents could articulate explicitly; however, there were many ways that programs demonstrated some theoretical foundation for their component activities. These included the following: (1) alternative theoretical models generated from their own experience; (2) principles of practice applied within and across programs--- principles that are consistent with Centers for Disease Control and other guidelines for effective HIV prevention.

One respondent was able to articulate a theoretical model derived from prior experience and composed of a coherent rationale for use in the field of HIV prevention. The HIV coordinator at a program targeting African-American clients explained that they did not use what might be considered more traditional frameworks but that she used *"my own theory. What I did I developed a presentation called Cultural Oppression."* She then went on to explain why she thought this was effective with the population the program serves: *"I present three systems and the three systems are the patriarchal system, the hierarchical system, and the capitalist system. Those three systems equal cultural oppression and then I do an exercise in which I show how this works and I give them a case history of a specific young lady who I work with and I talk about all those different things that the systems do and how that relates to this one particular woman how come women are at risk how come black women are at risk how come black*

intravenous-drug users are at risk and so on and so forth and they get the picture" [12:680-699].

Principles guiding practice: The individuals we interviewed were more likely to explain how and why their programs worked in terms of certain principles of prevention rather than in terms of theory or models of health education. One of the most important findings of this study, in fact, is how consistent the program operations are with Centers for Disease Control principles regarding effective HIV prevention. Effective interventions have the following characteristics: (1) are based on real, specific, community-identified needs and require close collaboration with community-based providers and researchers; (2) culturally appropriate; (3) geared to providing access to HIV-prevention materials and supplies; and (4) are individualized, ongoing, and multi-faceted. As part of this research study, the respondents identified other critical principles guiding their program activities: (5) the importance of the quality of relationships--- non-judgmental attitudes, trust, and consistency; and (6) the need for innovative approaches. We will discuss each of these components in turn.

Principles of collaboration: Certain principles of prevention, such as cultural sensitivity, access to risk-reduction materials, community collaboration, and individualized approaches to prevention interventions were noted, especially by community-level practitioners. Collaboration with existing community resources, institutions, and social networks were particularly important to practitioners of community-level interventions: *"Then they also work with public housing to do outreach during the summer at public [places] and this is like a collaboration of like probably a dozen or so agencies including the [x] housing authority, [x] multi-service center, and various health centers in the areas in which they're working . . . "* [14:524-532]. Another respondent, from a multi-service center, stated, *" Now we're just part of that effort with other people on this consortium. We speak on TV shows so we're often just randomly asked -- like next Monday night instance we're speaking at a local Latino network around HIV awareness and local services and stuff. . . . There's also a collaborative -- so a lot of it is collaboration with other community agencies" [18:450-461].*

Collaboration with other community agencies, cultural sensitivity, and the quality of the client-provider relationship were commonly cited as important features of street-outreach programs. In addressing the goals of a street-outreach program hosted through a family planning agency, the *HIV coordinator(ck title)* said *". . . it's a longer term goal to try to feed them into that program for HIV education but we had also hoped to kind of serve as a bridge in terms of doing the street outreach between these youths that we are contacting and any other services and information that they need as well by going out and contacting them where they are rather than hoping that they will come to us" [03:147-160].* Another respondent, the assistant director of a multi-service center said, *"I think it's that personal touch to it. Because a lot of folks . . . you know personally. And you're able to kind of get that message to them and they know where you've been" [11:401-406].*

Principles of culturally appropriate interventions: The prevention principles most frequently noted by practitioners delivering group-level interventions were cultural sensitivity

and an individualized approach, e.g., an approach that is specific to the needs and expectations of a particular target group. Recognition and attention to the social/political realities of clients' lives and qualities of the relationship (trust, recognition, non-judgementalism) between the provider and client were also perceived by practitioners to be important to their programs' success, particularly when clients were women or immigrants. The following quote from an HIV service coordinator demonstrates the role of cultural sensitivity, approach, and provider-client relationship in providing appropriate HIV-prevention education and services: "*Whereas someone born and raised here might have an understanding, okay here's my group leader and I see them once a week or my therapist and I see them once a week. That might be a somewhat more clear understanding than our folks have. And so there's a lot of issues with trust and who are you and why do you want to get to know me and those kinds of things, before people really engage. Which is true for American culture as well. . . But I think it's even more so for group*" [07:623-636].

The safety net party coordinator of a neighborhood health center explained the following about the importance of understanding the social and political realities of clients' lives: ". . . *when you are so confused that you believe that a doctor belongs to immigration and you are so afraid of being caught, what happens? You get sick-- as had two Latin-Americans at the hospital. Both of them illegals here, no papers. They did what a lot of people do here. They still go to the pharmacy and they buy Tylenol because they believe Tylenol is good for them, because it is a habit we have in our country. We don't go to see a doctor. Men never get sick*" [04:1363-1381].

Individualized and innovative approaches were also commonly noted in the interviews with street-outreach program respondents. A respondent from a program for African-American adults hosted through a multi-service center explained, "*We had a place over here on the back of the railroad tracks where everybody was getting high at. What we did, we had a cook-out and we had different places donate stuff. We set up grills and canopies and what have you. We gave away everything free. They came and they got it plus they got the information [HIV information]*" [11: 596-605].

A respondent from a family planning agency described an HIV quiz which was an "*electronic game board with a voice . . . lights and bells and buzzers and voices . . . We rotate it to sites throughout the county. That quiz is also in a printed form which we distribute in the bar parties at the shelters at the detox center on the street. In other words engaging people to take the quiz and giving them prizes for how well they do makes the whole intervention very different than a didactic presentation*" [13:643-658].

Principles of access to materials: The health educator of an urban neighborhood health center described the attention that her agency gives to the issue of access to risk-reduction materials: "*It's like we put them [condoms] in targeted places that people have access to them . . . they are trying pick them up so we put them in a place that they can hide when they pick them up, like when that are signing in they take longer and they can pick up condoms while they're signing in. Because if you put them right in the waiting area they won't pick them up*" [09:579-596]. "*We also have stores where we drop off the condoms, where people go but their groceries also*" [09:601-604].

Street-outreach interventions focused on providing access to materials necessary to reduce HIV risk such as condoms and bleach kits. The staff interviewed described their street-outreach programs as a link to other services provided either by their own agencies or by others in the community. In addition to HIV education, street-outreach staff often viewed themselves as case managers, referring clients to HIV testing sites, detox centers, and drug treatment services.

Principles of individualized, ongoing, and multi-faceted interventions: Even programs with interventions that were seemingly one-time street outreach acknowledged the need for intense intervention over time. One respondent said, *"It needs to be repetitive, it needs to be intense. And so, when we're talking about -- like a media campaign, or a sober dance or a gospel concert or a boat cruise or something like that it's more of an awareness kind of raising awareness and hopefully motivating people to become involved at a more intense level within the program which has been very successful. So it may motivate people to take an action step which is to call our hotline or to become more involved with the program or to ask questions or to spread the news about a particular program within their community. So it's not I don't think something that will necessarily lead to immediate or sustained behavior change. But it hopefully will lead them to taking action which will then involve them at a level that might lead to more sustained behavior change"* [14:746-768].

Principles of importance of relationships: A noteworthy feature mentioned by practitioners delivering HIV interventions at all levels was the quality of the relationships that develop between providers and their clients. In fact, the principles of prevention most often noted by street-outreach program staff included cultural sensitivity, individualized innovative approaches, and community collaboration. In addition, certain qualities of the provider-client relationship were considered especially important, including trust, credibility, and nonjudgmentalism. The importance of the provider-client relationship, relative to effective HIV-prevention practice, is a phenomenon not yet studied and seldomly addressed in the research literature.

An HIV prevention case manager at a multi-service center described the way in which repetition of the prevention message and access to risk-reduction materials is related to the provider-client relationship: *" There are a lot of clients who actually approach us and ask us for the stuff [condoms and bleach kits]. We're recognized in the community and they know and we make it a point not to be satisfied with that-- we go ahead and reiterate the concept of prevention. We reiterate why it [the condom] needs to be latex . We reiterate the expiration date. What we do at times is - - if this person knows by now- - we make them do a condom demonstration for us"* [17: 654-665]. The following reference to the importance of being "non-judgmental" was also common across all intervention types. The program director of one multi-service center said, *" I think what works is this constant repetition with them and the availability of . . . free condoms all the time, I think we're seeing more and more of them disappear. I think that it works because we're non-judgmental giving them repetition of information and having condoms available for them"* [19: 683-695].

Principles of innovative and clearly targeted approaches: Approaches that were both innovative and specific to the realities of the target population's lives and social networks played an important role in community-level HIV-prevention efforts. One respondent from an AIDS organization talked about a variety of culturally specific and innovative events including gospel concerts for the African-American community, a boat cruise for gay and lesbian Latino/as, and media campaigns specific to women and others. He talked about an example from the media campaign: ". . . let me read you one of the samples from the media campaign. It . . . shows a picture of a woman or an illustration of a woman and. . . she's saying Donnie pays for rent and food and everything so I felt weird asking him to wear a condom but I just had to. I mean I owe him a lot but not that much. Then it says Sherry, Sherry knows how to get a man to wear a condom. Then it talk the same tag line that I said before. So it kind of focuses people on something that might be real in their lives or something that's real in the life of someone they know. Then . . . it provides them with something, some information about what to do with that, if you're faced with that problem, and you don't know what to do" [14:805-825].

Discussion and Recommendations

In comparing the scientific literature with a sample of programs funded by the Massachusetts Department of Public Health we found that, for the most part, programs are aware of current developments in HIV prevention. However, we found that the respondents for only a few programs could explicitly articulate a theoretical framework underlying their prevention efforts. Interview respondents for three of the 20 programs were able to state a framework that was used. This does not indicate that the remainder of the programs were not guided by particular ideas, theoretical frameworks, or principles. In fact, all respondents demonstrated rationales for the efforts they were implementing that were implicitly based on constructs current in the literature.

This inability to articulate a theoretical framework should not come as a surprise. As indicated in the literature review, one can discern a decided trend from a period in which articles did not articulate a theoretical framework to a period in which it became an important aspect of the study. This reflects the ongoing theory construction and development that has occurred since the onset of the HIV/AIDS epidemic.

As with the literature, those organizations whose exclusive mission is HIV/AIDS prevention tend to be more knowledgeable and sophisticated in the articulation of theory and its application than are the agencies for whom HIV/AIDS prevention is secondary. Organizations for whom the primary focus is not HIV prevention (e.g., general health, family planning) tend to adapt interventions that have been demonstrated as effective in other settings and integrate them into their own organizational structure. This has been done with varying degrees of success and understanding.

From the literature it is clear that the various theoretical frameworks that have been applied to the prevention of HIV infection have shown decided limits. One finds that effective programs generally take selected constructs from given theories and integrate them into a program as a whole. This was the case in the programs sampled in Massachusetts. What has

become clear is that the fit between theory and application is not as smooth or neat as we might wish.

The findings of the prevention practice survey suggest to us that many programs need assistance in developing their own working models---models that demonstrate a better fit between theory and application. Because these agencies are in the forefront of prevention practice they are in a position to quickly test various aspects of theory and adapt them to the needs of their target communities and interventions. The findings further suggest that programs need assistance both in being able to conceptualize what it is that they do and in developing their own working models of prevention practice. Staff from the programs we interviewed were able to talk intuitively about the aspects of their programs that they feel contribute to its successfulness. For example, almost all of the programs cited the importance of the credibility of the provider, his or her availability, consistency, and nonjudgmental, supportive attitudes. However, very few studies, if any, focus on the importance of this critical relationship between provider and client, which anecdotally seems to be of tremendous importance.

We therefore recommend that the Massachusetts DPH develop the capacity to provide technical assistance to agencies to help them build the internal capacity necessary to reflect, conceptualize, and better articulate the various theoretical underpinnings of their programs and interventions. Program staff should be encouraged to think through and refine existing models and should be supported in developing new models based on their experience. Assisting prevention programs toward conceptualizing their own models will not only enhance the development of more appropriate and useful models but will set the foundation for program evaluation. The usefulness of both theory and evaluation for ongoing development needs to be supported by DPH. Although a separate analysis of the interview data specific to program evaluation is forthcoming, preliminary findings indicate that often programs provide the information required of them for funding with little appreciation as to how this data can be useful to them in further refining and developing their interventions.

IV. DATA GATHERING FORM FOR HIV EDUCATION AND PREVENTION PROGRAMS

A. GOALS

In January 1995 the Boston University School of Public Health (BUSPH) began the process of reviewing the data-collection systems used to monitor prevention-and-education contracts funded by the HIV/AIDS Bureau of the Massachusetts Department of Public Health (DPH). The major goal of this undertaking was to assist the the Bureau in improving the existing system for monitoring the work of contracted agencies and for improving the accuracy data reports required by the federal funding agency.

During an initial visit, BUSPH and Bureau staff reviewed the existing system for monitoring contracts, the Contract Monitoring and Assessment Report (CMAR) and concluded along with the staff that a tool for recording daily program activities in prevention and education programs was needed.

B. DEVELOPMENT PROCESS

Discussions with the Bureau's staff revealed that the CMAR data-collection system functions only as a mechanism for collecting aggregate data on a quarterly basis; it does not track or record daily client contacts. Because agencies differ in their ability to collect and record data in a systematic manner, the Bureau — as well as the agencies funded by the Bureau — agreed that the CMAR data were not a reliable index of prevention activities across the agencies. BUSPH was then asked to develop a reporting tool that would document all prevention-and-education client contacts.

Eight meetings were held over a period of five months with Bureau staff, members of the Prevention Planning Group, contract managers, and service providers from a variety of agencies funded by the Bureau. Using as guidelines the reporting requirements of the Bureau and the Centers for Disease Control and Prevention (CDC), each necessary data item was evaluated in terms of how reliably it could be obtained and how accurately it could be recorded.

Two types of problems emerged in the area of categorizing data: one involved CDC requirements and one the Bureau's own guidelines. Both Bureau and agency staff experienced difficulty using existing categories required by the CDC, for example, the CDC's classification of "Risk Exposure." Many prevention activities are oriented towards heterogenous groups of people, and the risk categories into which the people within those groups fall may not be known. Also, prevention activities may take place *before* high-risk behavior occurs (and, therefore, before a person has fallen into a specific risk-group category). Two options were recommended to deal with this issue: 1) develop for agencies explicit guidelines that closely follow CDC definitions, or, 2) propose to the CDC that new categories be developed that more accurately

reflect the varied composition of the audiences for prevention programs. It was also suggested that the Bureau might survey other states to explore what problems they are encountering using the CDC risk-group categories and what solutions for those problems have been tried or suggested.

At the Bureau level, it was noticed that there are no standardized categories of ethnicity in the Bureau's data- collection forms (e.g., prevention and education, counseling and testing, outreach). Without a standardized approach, data from various sources cannot be combined and summarized.

C. IMPLEMENTATION OF NEW DATA FORM

In conjunction with the development of a revised form for gathering data on prevention and education, a detailed training manual will be developed by the Bureau that will provide extensive descriptions and definitions, as well as examples of responses, for every data field. Also, training sessions will be organized for all service providers to review the process of data collection.

The data instrument will be printed on a scanable, "bubble" form. One form will be completed for *every* contact an outreach worker makes. At designated intervals to be determined, agencies will be required to mail all completed forms to the HIV/AIDS Bureau, where forms will be scanned and merged into a data base. This process is designed to replace the "Activity Utilization Report - Appendix B" of the CMAR, thus making it unnecessary for the individual providers to aggregate their own information.

After the data are entered into the data base, the bureau will generate and distribute reports to each agency, summarizing the information. Summary reports will have two purposes: 1) agencies will be able to use the reports for program development and planning, and 2) the bureau will be able to use the information to monitor contracts and determine whether agencies are meeting contractual objectives.

D. SYSTEM REQUIREMENTS

Because the bureau will be receiving data forms describing every prevention-and-education contact, the system's need for computer storage, scanning capabilities, quality control, and analysis will greatly increase. Therefore, we recommend at least one 486 computer, with a hard-disk capacity of 300 or more megabytes and 16 or more megabytes of RAM, be dedicated to processing the new forms. A tracking system created in a data-base software program should be developed which would indicate how frequently data are to be received from each of the agencies (for instance, monthly on the first calendar day of the month). A report could then be automatically generated alerting specific agencies if data from their sites had not yet been received. These activities will require the expertise of a team of data managers and data-base programmers.

Because scanning is not 100% accurate, after every month's worth of data have been entered, some designated percentage of the data (e.g., 20%) should be manually reviewed to

guarantee accuracy.

Another quality-control check will be the quantitative review of the data. A statistical software package, for example, SAS, can be used to check for out-of-range values or internal inconsistencies.

The statistical software can also be used to generate descriptive statistics on each of the data fields as well as useful comparisons between the different programs. This activity will require the expertise of a programmer knowledgeable in a statistical software such as SAS or SPSS-X.

V. RECOMMENDATIONS FOR DEVELOPING A COMPREHENSIVE EVALUATION EFFORT

As part of this contract, the AIDS Bureau and the MPPG requested that we develop recommendation for how program evaluations could be conducted at the state level to assess the impact of currently funded HIV education and prevention programs.

This section describes three major areas of recommendation for developing a comprehensive evaluation effort within the AIDS Bureau.

A. MONITORING THE IMPACT OF HIV PREVENTION ON THE EPIDEMIC

The Department might consider conducting ongoing behavioral epidemiological studies that would allow for tracking risk behaviors in populations in targeted cities over time. Due to the expense of generating behavioral epidemiological studies, it would be more cost effective to select targeted cities of special interest for such studies. This would enable the Department to use a time series design to assess changes in behavioral risk and to connect such changes to major HIV prevention initiatives. The advantage of such epidemiological data is that it would allow the Department to track how behavioral risk is changing across population groups over time in specific cities and to therefore better target populations for prevention programs.

Adding a behavioral epidemiological approach to the Department's surveillance activities would require a long-term commitment since such data would probably be collected annually. This endeavor would also require allocation of substantial resources to conduct the risk behavior surveys using either telephone interviews using random digit dialing telephone methods or in-person interviews using a random household sample with over sampling of specific racial/ethnic populations and drug users and a sample of homeless individuals.

The time frame for this effort would require 6-8 months of planning time with internal staff from the appropriate Divisions in order to develop an agreed upon methodology, sampling frame and questionnaire. Data collection depending on methods, resources and the number of

cities included could take approximately 3-5 months and data coding and analysis could take another 3-5 months. Alternatively, this type of effort might be best handled as a contract that is overseen by a core group of DPH staff.

In summary, the advantage of an epidemiological approach to assessing the impact of major prevention efforts is that it allows us to track over time the major course of the epidemic in relation to prevention initiatives by the State. A major limitation of this approach is that it does not allow us to assess the impact of specific prevention approaches or programs. Another approach for evaluating the effectiveness of specific prevention programs is suggested in a later section. The epidemiological approach is most useful if accompanied with other approaches that reveal more directly the relative effectiveness of specific program approaches

B. FOCUSED STUDIES ON EFFECTIVENESS OF COUNSELING AND TESTING

In January 1995 the Boston University School of Public Health (BUSPH) began discussions with the Counseling and Testing Services of the Massachusetts Department of Public Health's HIV/AIDS Bureau about data- collection systems, data-monitoring needs, and program-evaluation goals. Counseling and Testing Services has an established data- monitoring system that effectively documents client flow at each site. We therefore focused our attention on the question of evaluating the effectiveness of the counseling-and-testing session. Discussion with DPH staff and our review of the literature revealed little scientific documentation of the relative effectiveness of the various models of counseling used during the process of HIV-antibody testing (so-called, "counseling and testing"). We believe it is important to examine the different counseling models and to assess both their costs and their effectiveness in promoting risk reduction.

1. Summary of Recommendations

We recommend a series of three research studies to evaluate the effectiveness of the HIV Counseling and Testing Services of the Massachusetts DPH HIV/AIDS Bureau. The current CDC guidelines for HIV counseling and testing state that counseling in the context of HIV-antibody testing should initiate changes in behavior to reduce the risks of contracting HIV and facilitate triage to appropriate medical and preventive services in response to a client's type and degree of risk. We recommend that the evaluation of the Counseling and Testing Services focus on measuring the services' effectiveness in meeting these guidelines and on ways of increasing that effectiveness. While there are several options for the specific design of such research, any scientifically based effort that focuses on the effectiveness of the intervention must, at some point, involve the interviewing of clients, both when they present themselves for testing and at a follow-up some months after testing.

We recommend conducting two preliminary studies before embarking on a client follow-up study. The first of these would be a survey of selected, DPH-sponsored, testing programs — and of program counselors — to understand better the framework currently underlying counseling and testing and to describe the various approaches to counseling used in

the programs. The second of these preliminary studies would be a survey of clients as they come in for counseling and testing, assessing their history (prior HIV-testing, exposure to other HIV-prevention efforts, readiness for behavior change) and their expectations of testing. These preliminary studies would not only provide a better understanding of the current counseling-and-testing process, they would also provide useful information for a follow-up study of clients that examines the effectiveness of counseling in initiating changes in behavior and in connecting clients with needed services.

2. The Recommendations in Detail

2.1 Research Goals

The goals of HIV counseling and testing, briefly suggested above, have been more fully outlined by the CDC. They are: 1) to provide a convenient opportunity for persons to learn their serological status; 2) to provide counseling to initiate changes in behavior that can prevent the transmission or acquisition of HIV; 3) to help persons obtain referrals to medical, preventive, psychosocial, and other services; and 4) to provide prevention services and referrals to the sexual partners of HIV-infected persons and to those who share needles with infected persons. We believe that the first goal — providing an opportunity for persons to learn their serological status — is clearly met by the bureau's testing programs. In evaluating the effectiveness of counseling and testing, we are therefore primarily concerned with the remaining three goals.

To investigate ways of improving the effectiveness of counseling programs, a study ought to focus on comparing the outcomes — the changes in the behavior and health of clients — of different types of counseling programs. There are several points of focus for this comparison. If there is broad variation in the underlying theory and approach taken by current programs designed to serve similar populations, then a comparative study of the effectiveness of these programs would be appropriate. If a review of the counseling literature and a review of the current counseling programs in Massachusetts suggest that a modification of the counseling approach, or of the training of counselors, might prove effective, then a comparison between current counseling programs and an enhanced program would be appropriate. In either situation, the goal of the study would be to determine if there are differences in the effectiveness of the programs being compared and, where possible, to measure those differences.

We recommend two preliminary studies be conducted before embarking on an evaluation of the outcomes of HIV counseling programs. First, we recommend a study to document more precisely what currently goes on during counseling sessions. Does counseling follow an education model or a behavior-change model? How much variation is there in the content of a counseling session from client to client, from counselor to counselor within a program, or from program to program? Is different counseling offered by programs that primarily serve gay clients, programs that serve injection-drug users, and programs that serve heterosexual clients?

The second preliminary study we recommend is a study of clients when they present for HIV counseling and testing aimed at improving our understanding of the characteristics of the client population and of its readiness for behavioral change. What brings clients in for testing? Have they had contact with other HIV- prevention efforts? Have they been tested before? How

knowledgeable are they about the risks of contracting HIV? Have they thought about changing high-risk behavior? Are they interested in learning about other preventive services besides those linked with testing?

Both these preliminary studies would provide information that could help identify strengths and weaknesses in the current counseling and testing programs and lead to modifications in counseling guidelines or counselor training. Also, these studies would provide the background information necessary to design and focus a follow-up study of the impact of HIV counseling and testing on clients.

2.2 Research Design

We will first discuss design issues for the preliminary study of programs and counselors; then for the preliminary, cross-sectional survey of clients as they present for testing; and, finally, for the follow-up study of clients who undergo testing

2.2 Preliminary program study

The first study would seek to document what goes on during a counseling session and how this may vary by counselor and program. This would be an observational study of counselors, using both quantitative and qualitative measures. We recommend selecting about 16 programs (sites) for this study. Sites should be selected in a way that represents a range of programs, varying as to type of site (STD clinic, health center, testing center) and client base (different risk factors, male/female ratios, racial distributions). We recommend that all counselors at the selected sites be included in the study.

Quantitative data to be collected in this study would include background data on the counselors (demographics, training, experience) and data collected by observers watching a series of counseling sessions. Observers would use a standardized instrument to score counselors according to theoretical orientation (e.g., education model vs. behavior-change model) and success at providing and elucidating key information. We recommend that the “clients” in these evaluation sessions be role-players from the study, rather than actual program clients. This has the advantage of standardizing — as much as possible — the counseling situations that counselors face. Role-playing would also allow the study to elicit different aspects of each counselor's approach. Analysis would focus on the content and process of counseling sessions, and the variation of content and process by counselor, type of client, and type of site.

The qualitative part of this study would involve an in-depth, open-ended interview with counselors about their perceptions of the role-playing clients, their assessment of the needs of these clients, and their primary goals for these clients.

Study time-line. The preliminary study of programs and counselors would require eight months of effort. Months 1 through 3 would be used for developing the data-collection instrument, developing the role-playing scenarios, and selecting the sample of sites for participation in the study. Months 4 and 5 would be for data collection. Months 6 through 8 would be for data analysis and the writing of study reports. Personnel would include a doctorate-

level study coordinator with expertise in counseling, who would help develop the data-collection instrument and the role-playing scenarios, train the role-players, observe counselors, collect data, and direct the writing of a final report. The study team would also include two role-players and a data-manager/analyst who would help in developing the data-collection instrument, manage and analyze the study data, and participate in the writing of the final report.

2.3 Preliminary client study

We recommend an anonymous, self-administered survey of clients presenting for HIV counseling and testing, which could be distributed, completed, and collected at each testing site. We would again suggest choosing a sample of sites that represents a range of situations (the same set of sites of used in the counselor survey would allow for some cross-analyses). We recommend asking all subjects presenting for testing during a specified time period — one month — to participate in the study. It should be made clear that participation is voluntary and that the responses will be anonymous, used only for research, and that they will not be seen by a counselor. Data to be collected would include: information on risk factors; attitudes toward high-risk behavior; readiness for behavioral change; the reasons why the client decided to be tested; prior testing history; any history of participation in other HIV prevention or education programs or use of medical or preventive support services relating to HIV; and the degree of client interest in the use of such services. This survey could also assess the willingness of clients to participate in a follow-up study.

Study time-line. This second study would require six months of effort. Months 1 and 2 would be for development of the data- collection instrument and sample selection. Month 3 would be for data collection. Months 4 through 6 would be for data analysis and report writing. Personnel would include a study manager who would help develop the data-collection instrument, distribute the instrument to sites, coordinate procedures for getting the instrument to clients, supervise the study's collection of the completed instruments, and be involved in the writing of a final report. A data-manager/analyst would oversee computerization of the data and data analysis, and would also participate in the writing of the final report.

2.4 Follow-up study

The follow-up study would focus on the comparison of two counseling models. These two models could either be examples of variations that currently exist in counseling and testing programs in Massachusetts or they could be the current "standard" approach paired with an enhanced experimental intervention. The study would involve six sites, three sites for each of the counseling models to be compared. To represent the range of site types and client populations, the sites should be matched into three pairs, each pair testing the two models in similar sites with similar groups of clients. Three hundred clients should be enrolled under each counseling model (100 at each site). To be eligible for participation, clients would have to provide an address or phone number for follow-up use. Data would be collected at enrollment (when the client presents for testing) and at two follow-up points, three months and six months after enrollment. Follow-up interviews could be conducted in person at the clinic where clients were enrolled or, by appointment, over the phone. The interviews would focus on changes in behavior related to

the risk of contracting HIV and on the use of appropriate prevention services.

Study time-line. The follow-up study would require 18 months of effort. Months 1 through 3 would be used to develop study instruments along with enrollment and follow-up protocols and to train study personnel. Months 4 through 6 would be for client enrollment (100 clients to be enrolled at each site in three months, roughly eight clients per site per week). Months 7 through 9 would be used for the three-month follow-up and months 10 through 12 for the six-month follow-up. Computer processing of the data would occur throughout the data-collection period; analysis of data from enrollment could begin in month 7 and analysis of data from the three-month follow-up in month 10. Months 13 to 18 would be reserved for analysis and report writing. Personnel would include a study coordinator; a half-time site manager at each site, responsible for enrolling, tracking, and following-up that site's clients; a statistical consultant and a data-manager/analyst who would also support the tracking effort.

C. EVALUATION OF THE SAFETY NET PREVENTION PROGRAMS

The Safety Net Program sponsors in-home parties of about 10 people as an opportunity for a peer leader to provide HIV/AIDS awareness and education. The strength of the program is in the peer leaders and their connection with the community. Health educators across the state have expressed the perception that the Safety Net Program is an effective approach to reaching high risk and ethnic minority populations and for providing HIV education and prevention messages. However, this model has not been formally tested for its effectiveness in the prevention of HIV infection. Safety Net Models, as they are currently delivered pose a number of challenges to program evaluation. There is a lack of data on how this program is actually implemented across different sites, on the training for peer leaders and the degree of standardization of the Safety Net message.

Since the Bureau has allocated a substantial amount of funding for Safety Net Programs in various communities in the last five years, it is an important program to evaluate. Information on the effectiveness of the Safety net Model for women would help the Bureau decide whether to continue spending funds on this model and what types of changes may be required to make the model more effective.

The evaluation of the Safety Net Model would require a number of steps to get programs in a state of "readiness" to be formally evaluated. First, we would need to develop a theoretically grounded and programmatically well articulated model for Safety Net. This step would include: 1) observing Safety Net Programs in various settings to note the differences in how these are currently conceptualized and implemented and 2) holding two to three focus groups with health educators who facilitate Safety net Programs in order to explore approaches to delivering the Safety Net message, curricula used for the program, their successes and failures with the program, and other issues they might have with the program.

The third step involves selecting the cities and sites that will participate in the intervention and training the Safety net educators. The purpose of this training program would be to provide a common working framework and behavioral strategies to be employed in the

Enhanced Safety Net Program.

1. Developing a Safety Net Leader Training Program

We anticipate that the training program would center around groups of five to ten peer leaders and involve several sessions. The first session might involve a general overview of the Safety Net Program and some theoretical orientation, and focus more on providing the leaders with information and allowing them to share their experiences. The second and third sessions may focus more on the major learning about the major components of the Enhanced Safety Net Program and practicing the exercises, role plays and other intervention strategies.

2. Evaluation Plan

We propose implementing the enhanced Safety Net program in stages to allow for a comparison of the impact of the enhanced and current program. The proposed research design is a lagged time series design with multiple sites.

This evaluation study would require one and a half years. Communities where Safety Net is underway would be randomized into two groups. The first group would receive the enhanced training at the start of the study period, while the second group would receive the enhanced training at six months. This design provides the Enhanced Intervention in all communities while allowing for a test of the effectiveness of the Enhanced Safety net Program. A comparison between the two groups of communities over the first 6 months of the study provides a concurrent comparison of the enhanced vs current Safety Net program. Comparison within each group of communities over the six months preceding and the six months following training allow for a pre-post comparison of the enhanced Safety Net program.

We recommend that evaluation of the Safety Net program be conducted only at the client level since this is where we expect to see most of the effects. We would ask clients at Safety Net parties to complete a short data collection form, covering basic HIV knowledge, behavioral risk factors, and their motivation for attending the Safety Net party. We would also ask permission to give them a follow-up phone call at one month and six months following the intervention, at which times we would check on their retention of the Safety Net message, whether they have discussed HIV/AIDS issues with others, and risk behaviors. We would conduct power calculations to identify appropriate sample size per group of communities per six month period (an initial estimate may be 200 clients per group or a total of 400 clients over the study period).

3. Study time-line

We expect that it would require 6-8 months to research potential models for this type of educational/behavioral intervention, coordinate focus groups, and develop an enhanced training program. We suggest a team of two or three people to develop the intervention, with at least one of the team at a senior level (doctorate or substantial intervention experience).

The evaluation study would require one year and an additional 4-6 months to finalize data collection, analysis, and the writing of reports. Data from the client surveys will be accruing throughout the study period, and analysis of this data can be ongoing. Personnel for the evaluation study would include personnel involved in training the peer providers, a telephone

interviewer to conduct client follow-up interviews and data coding, and a data manager to conduct data analysis.

Data analysis would focus on comparing the immediate and long-term effectiveness on risk reduction of the Enhanced vs Standard Safety Net Models. The analysis would also seek to identify the characteristics (e.g., racial/ethnic groups, level of initial and type of risk) of individuals with whom this approach is most effective.

Due to the work and the estimated amount of time that would be required to bring Safety Net Programs to the point at which they could be evaluated we recommend that the Bureau focus it's immediate efforts, on only those steps necessary to ready Safety Net Programs for evaluation.

APPENDIX A

I

Theoretical Models

This appendix reviews the theoretical models from the behavioral and social sciences that are referred to in the main body of the paper. The fundamental concepts of these models should be used to guide the process of developing and implementing prevention programs and client services that are appropriate for specific target populations. Using theory as a foundation for intervention programming serves both to outline important behavioral factors that place people at risk and to provide program planners with a means of measuring overall effectiveness.

There are many different theories of behavioral change that can be used to understand, explain, and predict health-related behavior. Some of these models have been used more frequently than others and with varying degrees of success in AIDS-prevention programs. Readers should critically analyze and evaluate the appropriateness and relevance of each model for the target population and communities with whom they are developing prevention programs. The following is a brief discussion of the basic concepts of these models.

Health-Belief Model (Becker, 1974)

The *health-belief model* has been used to explain and understand the nature of, and the means of changing, a wide range of health-related behavior. In attempting to understand and alter health-related behavior, the model posits four basic components or variables:

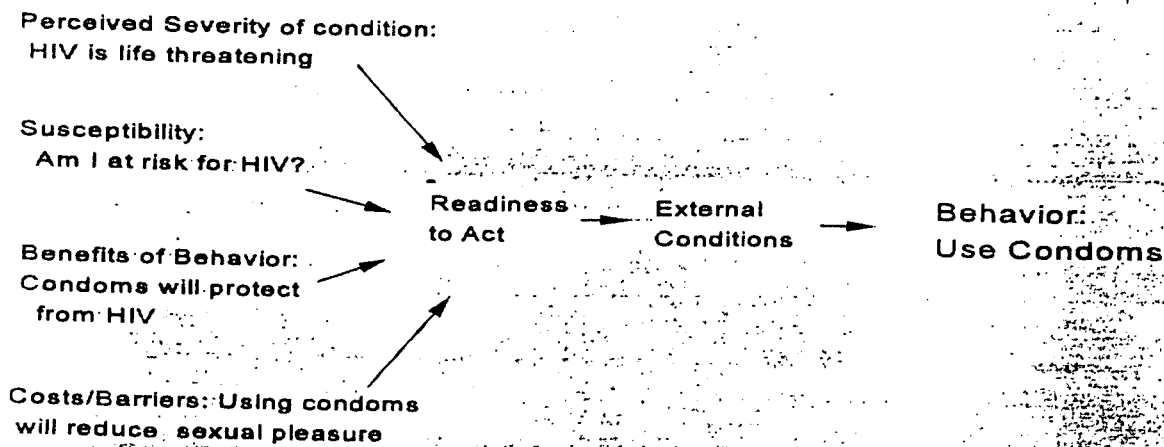
- personal *susceptibility* to illness
- the perceived *severity* of illness
- the perceived *benefits* of protective action
- the perceived *barriers* to adopting protective behavior.

Susceptibility refers to a person's perception of his or her risk of contracting an illness. Perceived *severity* relates to a person's feelings and beliefs concerning the seriousness of contracting an illness or of leaving it untreated; these feelings can be related to the medical, psychological, or social consequences of the illness. Perceived *benefits* refers to the individual's understanding of the benefits derived from actions that can be taken to reduce the threat of disease. The perceived *barriers* are those aspects or consequences of protective behavior that are seen by the individual in a negative light and that can discourage the carrying out of a recommended action.

In the model, externally provided *clues* are usually required to initiate and sustain action. It is important to remember that a variety of personal and social characteristics such as age, sex, knowledge, and culture also have a role in modifying behavior.

The health-belief model is a means of examining threats to health; it calls attention to people's sense of vulnerability to disease and to the expectations they have about actions involved in prevention and treatment. Interventions aimed at preventing HIV infection that are based on the health-belief model usually focus on the provision of useful and persuasive information. These interventions are thought to be effective in increasing people's ability to see themselves as susceptible to the virus by increasing their knowledge of the virus and in reducing risk behavior by increasing individuals' understanding of the severity of the consequences of infection, to consider protective action, and to minimize the costs of self-protection. In short, the

Health Belief Model



Hornik, R. Alternative Models Behavior Change. *Handbook of Health Behavior and Sexually Transmitted Diseases*. *Journal of Microbiology*, Washington D.C. p 201-18 1991.

goal of such an approach is to enable people to protect themselves.

The Theory of Reasoned Action (Ajzen & Fishbein, 1980)

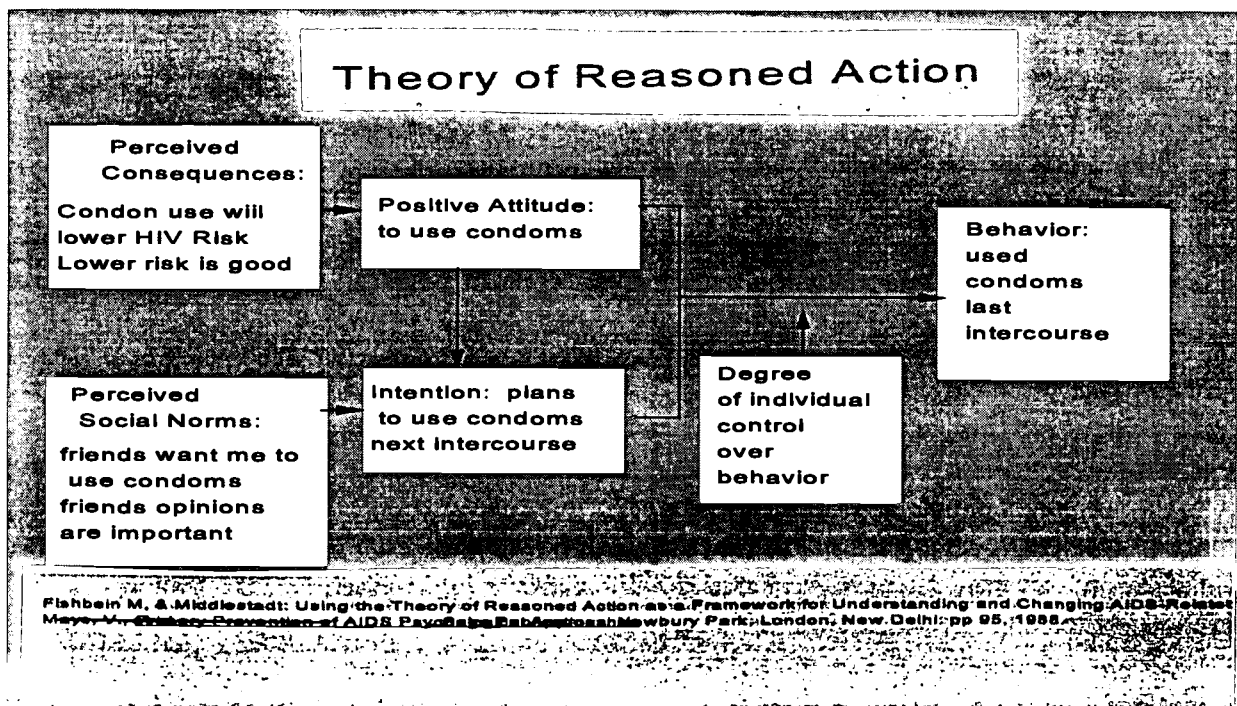
The theory of reasoned action provides information about the linkages between knowledge, belief, attitudes, and behavior (Ajzen & Fishbein, 1975). The theory assumes that a person's "intention to act is the immediate determinant of behavior" (Valdiserri, 1989, p. 53).

Four factors are seen as affecting intention:

- a person's attitude toward the behavior and its value
- a person's beliefs about the behavior
- a person's perception of social norms (i.e., beliefs about what other people, important to the individual, think of the behavior)
- the value a person puts on approval by others.

Interventions based on the theory of reasoned action address behavioral change by focusing on cognitive structure: the interrelationship of the understandings and beliefs a person has about the behavior in question. For instance, "the theory would predict that a gay man who values the approval of his peers, believes that they endorse safer sex, and also believes safer sex can be enjoyable, would be more likely to engage in safer sex compared to men who do not have these beliefs" (Valdiserri, 1989, p.53).

In designing and implementing prevention programs based on the theory of reasoned action, it is essential to specify the behavior that is to be changed. And to change behavior, following the theory, the intentions regarding that behavior must change also. "For example, if the desired behavior is for a person to use a latex condom every time he or she has sexual intercourse, the person's intention to use a latex condom every time he or she engages in sexual



intercourse must be increased, and not his or her intention to practice safe sex or to use a condom or even to use condoms every time he or she engages in sexual intercourse” (Fishbein and Middlestadt, 1989, p.100). Thus, HIV/AIDS interventions derived from this theory should focus on strengthening an individual’s intention to practice a specific safer type of behavior by increasing knowledge about AIDS, raising expectations regarding the effectiveness of safer sex practices, and generally heightening favorable feelings toward the behavior in question.

Social Cognitive Theory (Bandura,1977)

According to social learning theory, behavior is developed, modified, and maintained by personal factors, behavioral factors, and environmental factors. Behavior, in this model, is determined by expectations and incentives that are often directly related to the consequences, positive or negative, a person associates with different types of behavior. In addition, the willingness to change behavior depends on individual expectations about the ability to perform an action successfully. Social learning theory takes into account self-perception and self-judgment and suggests that these factors play a large part in the relationship between the information people receive and the action they eventually take (Valdiserri, 1989).

There are several ways of fostering behavioral change that are consistent with social learning theory: 1) increasing the perceived incentive value of the consequences of suggested behavior; 2) providing people with the cognitive and behavioral skills to make helpful changes, both in their own behavior and in the environmental context that surrounds their behavior; 3) building self-confidence and self-control; 4) increasing belief in the support, concern, and respect of others; and 5) addressing ways to prevent relapses from constructively altered behavior (Valdiserri, 1989).

The concepts of *self-efficacy*, *explanation of relapse*, and *self-regulation* — as outlined in social learning theory — are important when considering AIDS-prevention efforts. *Self-efficacy* refers to a person's confidence in his or her ability to perform a particular action. People begin the process of behavioral change with an appraisal of their own ability to execute an action and will revise that appraisal in light of their success or failure in their first attempts to change their behavior (Valdiserri, 1989). They attribute their success or failure in attempting to change behavior to several factors: their own ability, their degree of effort, the difficulty of the particular action involved, and luck (Valdiserri, 1989).

The theory's explanations of the reasons for *relapse* from constructive changes are particularly important in light of the various findings cited in the literature. Researchers find that temporary relapses or "slips" are common in newly changed behavior. If, however, individuals attribute these slips to a "lack of ability or to a certain degree of difficulty associated with the behavior change, than the person will perceive a lower self-efficacy and relapse [more permanently] to the high-risk behavior" (Valdiserri, 1989,p.59). If a person sees some improvement, however, these slips are viewed as only temporary setbacks and the perception of self-efficacy is strengthened.

The idea of *self-regulation* grows from the assumption that people "generate implicit theories about their bodies and about health and illness" (Valdiserri, 1989, p.59). Self-regulation consists of four steps: gaining information about the environment, generating a representation of the dangers of illness, planning and acting to cope with those dangers, and monitoring or appraising the effects of coping reactions. Thus, if an individual has only a vague understanding of the danger associated with a particular type of behavior, the representation he or she will make of the danger will be inaccurate and may lead to actions to cope with the danger that are inappropriate or unsuccessful.

In the perspective of social learning theory, people who perceive themselves as personally vulnerable to illness will be better able to change their behavior to reduce risk if they have opportunities to acquire skills and if they receive reinforcement from peers for their efforts to

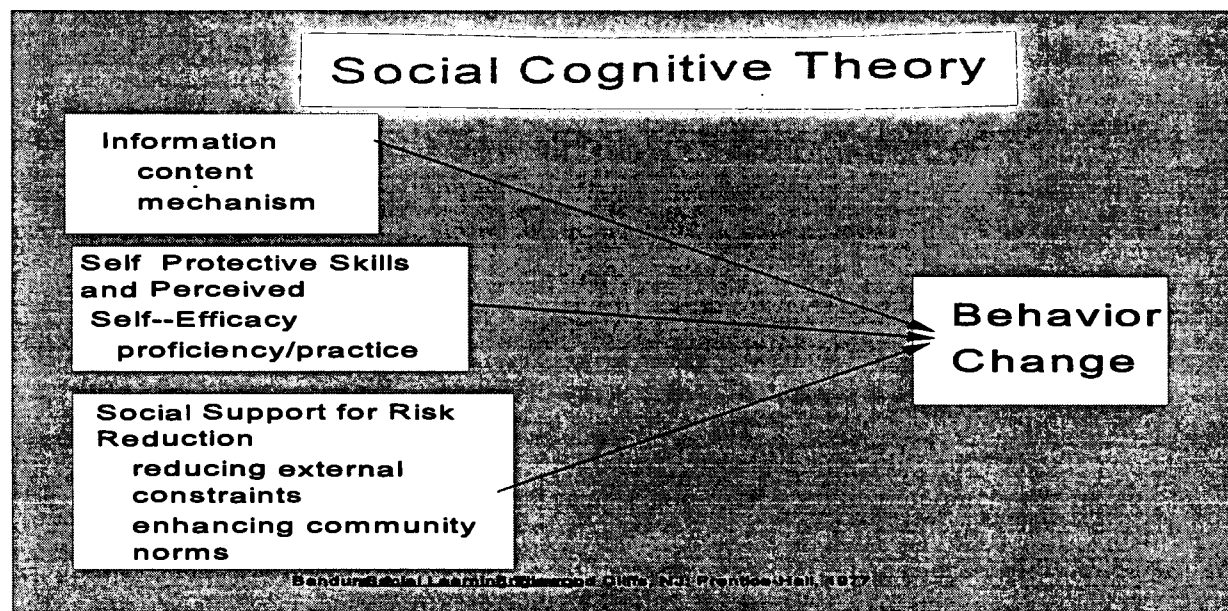
change. Thus, programs designed with this theoretical framework should contain various skill-building techniques to reduce high-risk behavior. These could include detailed education about risk; self-management training or role-playing, specifically dealing with situations associated with high-risk behavior; assertiveness training to enable trainees to resist requests or coercion to engage in high-risk behavior; and other techniques that pay particular attention to increasing participants' health consciousness, pride, and sense of confidence in their ability to make risk-reducing changes in behavior.

Stages of Change: Transtheoretical Model (Prochaska, 1982)

The stages-of-change model assumes that behavioral change occurs over time and in very specific, sequential stages. The model defines a process that can be used to explain why and how people change problematic behavior. The developmental stages posited in this model are: precontemplation (not yet intending change), contemplation, (intending change within six months), preparation (actively planning change), action (making changes), and maintenance, (taking steps to sustain change and resist the temptation to relapse into former behavior) (Prochaska and DiClemente, 1992).

People are motivated to move from one stage to the next for a variety of reasons. Research has shown that "progression through the stages is not usually linear and for most health behavior problems the majority of people relapse and return to the precontemplation and contemplation stage of change before they actually succeed in maintaining change" (Institute of Medicine, 1994, p.85) It is important to note that in this model relapse is part of the process of change and not considered a failure or negative outcome.

Following the model, there are ten techniques that people use as they move through the stages:



- *consciousness-raising* — heightened awareness of a health problem
- *self-reevaluation* — reappraisal of the problem as it relates to the particular

- individual
- *self-liberation* — the choice or commitment to act, the belief in one's ability to change
 - *counter-conditioning* — the substitution of alternatives for the problematic behavior: relaxation desensitization, self-assertiveness (the ability to resist pressures to relapse), positive self-statement;
 - *stimulus control* — avoiding or countering stimuli that elicit problematic behavior
 - *reinforcement management* — rewarding one's self, or being rewarded by others, for protective behavior
 - *helping relationships* — being open and trusting about problems with someone who cares
 - *dramatic relief* — experiencing and expressing feelings about one's problems and solutions: role-playing, psychodrama, and the acting out of grief for losses
 - *environmental reevaluation* — assessing how one's physical environment affects one's problematic behavior.
 - *social liberation* — increasing the possibilities for non-problematic behavior in society at large, e.g., advocacy of rights for the socially oppressed, empowerment, and positive changes in governmental and social policy (Prochaska, DiClemente & Norcross, 1992).

In the light of the stages-of-change model, interventions should target not only people who are already prepared to take action, but also those who are only considering changes in behavior and even those who currently have no intentions of change. Interventions based on the model are usually more successful in modifying behavior than are programs that do not take into consideration the individual's readiness for change. Tailoring programs to the specific stages of change in which participants find themselves at the start of the intervention almost certainly improves the chances of success in most risk-reduction efforts (Prochaska, et al., 1992).

Interventions based on the stages-of-change model attempt to match particular processes of change with the particular characteristics of clients. There are several approaches program designers can use when attempting to help particular kinds of clients through the process of change:

- increasing clients' information about themselves and the targeted health problem through observation, confrontation, and interpretation
- using imagery and emotional experience to assess how clients feel and think about themselves with respect to the problem
- decision-making therapy and commitment-enhancing techniques
- training in relaxation, desensitization, self-assertiveness, and the use of positive self-statements
- help in avoiding cues that prompt high-risk behavior and in the restructuring of clients' environment to avoid high-risk settings and situations
- creating contracts and other means for clients to be rewarded — by themselves and by others — for positive behavioral change
- fostering social support and self-help groups

- psychodrama, grief exercises, and role-playing
- expanding clients' options for non-problematic behavior through socially constructive activism (Prochaska, et al., 1992).

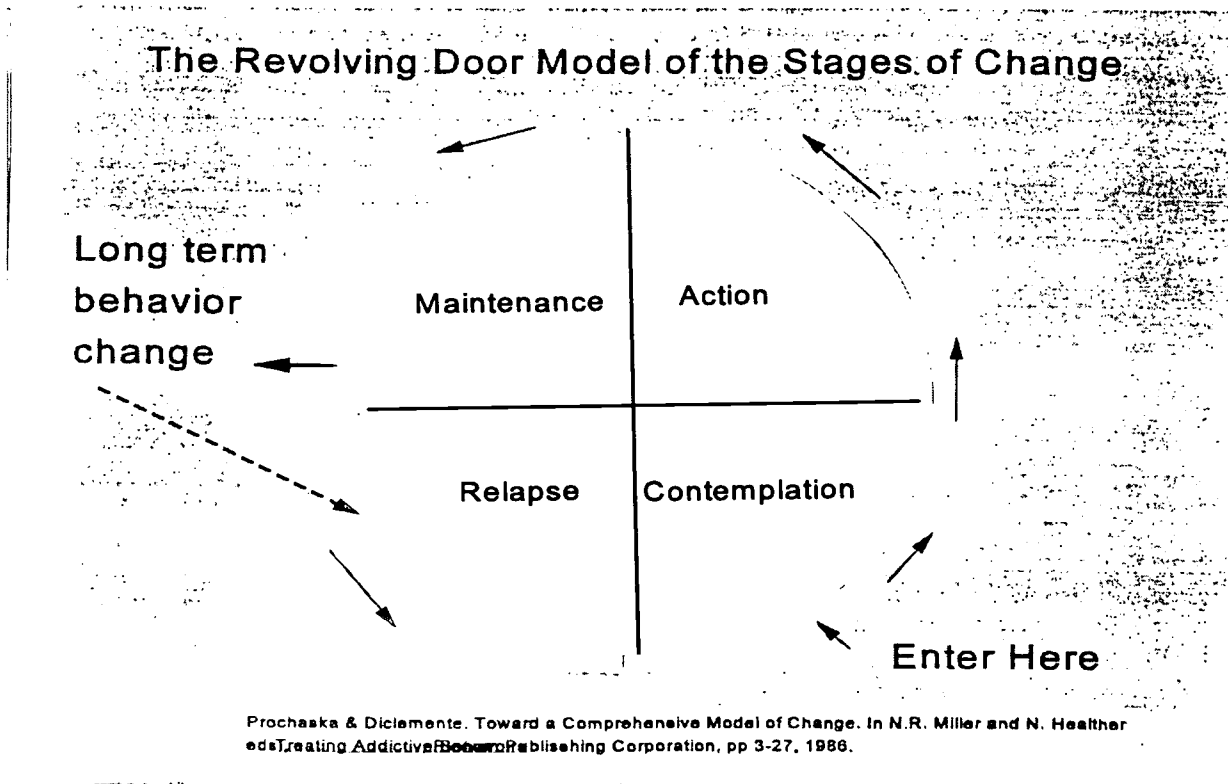
By using these elements of the stages-of-change model, program providers can offer clients a promising and practical way to bring about personal behavioral change.

Diffusion of Innovation or Diffusion Theory (Rogers, 1983)

Diffusion theory describes the process by which an innovation is communicated, and its use adopted, among the members of a social system. The model suggests effective ways of transferring to the outside social world problem-solving strategies developed in research settings.

There are several attributes consistently identified with successful diffusion efforts:

- *compatibility* — innovations should be consistent with the economic, sociocultural, and philosophical value-system of the target community
- *flexibility* — innovations should be used as separate components that can be applied to a variety of settings
- *reversibility* - innovations should be reversible and capable of termination (that is, people should be able to stop the new practice and revert to the old, if



circumstances make that desirable)

- *relative advantage* — innovations should appear to be beneficial as compared with current practice and other alternatives



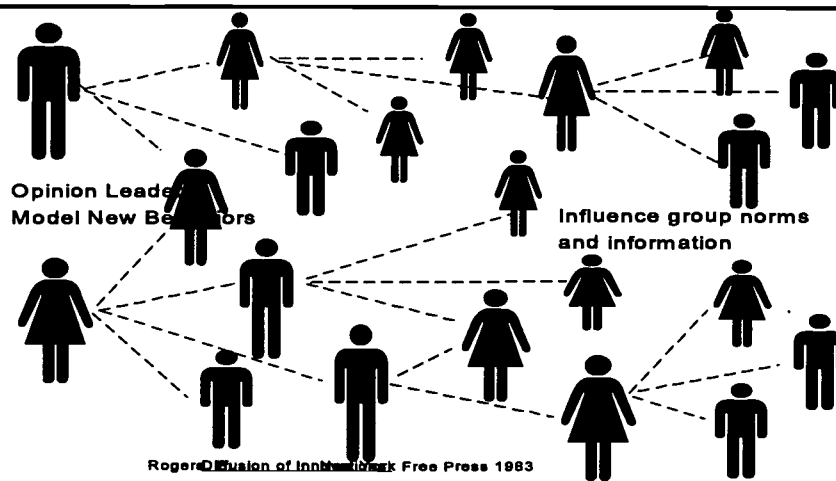
- *complexity* — innovations should be clear: both easy to understand and to communicate
- *cost-effectiveness* — the perceived benefits of the new practice must outweigh the perceived costs
- *acceptable risk* — innovations that appear to involve high risk are less likely to be adopted.

These attributes, highlighted by diffusion theory, all contribute to the long-term sustainability of an innovation. A successful diffusion process produces changes in the community that make new, safer behavior the norm (Institute of Medicine, 1994).

The diffusion approach emphasizes participation by the target group in all aspects of the change process. Individuals from the target group act as agents of change and facilitate collaboration between the developer of the innovation and the target community. The exchange of accurate information between groups and the tailoring of an innovation — in terms of both content and design — to the characteristics of the target community are essential.

Researchers contend that high-risk behavior that is of long standing and highly reinforced, such as cigarette smoking and drug use, is often the most difficult to alter (Kelly, St. Lawrence, Brashfield, and Hood, 1989). Under these circumstances, it seems that the awareness of risk alone is insufficient to produce protective changes in behavior. Thus, preventive interventions based on diffusion-of-innovation concepts rely on a group of strategies: educational campaigns aimed at redefining social norms or standards within the risk population; community-based interventions that can assist individuals or groups in developing decision-making, assertiveness, self-management, and problem-solving skills; and the dissemination both of specific information about risks to health and of materials used in protective behavior (in the case of AIDS prevention, the distribution of condoms, bleach, and clean needles).

Diffusion of Innovation

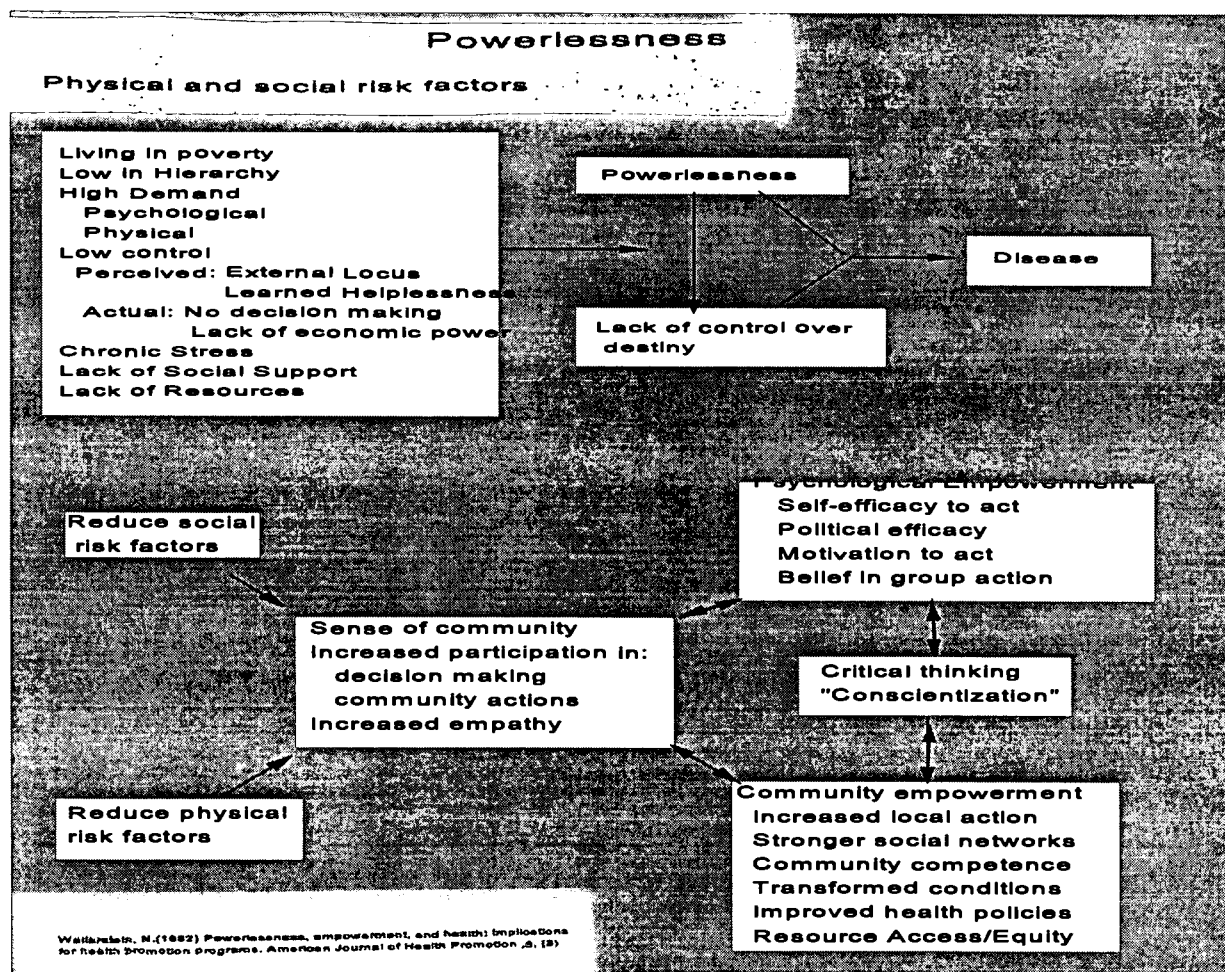


Participatory Education: (Freire, 1970)

Participatory or empowerment models of health education posit that “powerlessness” at the community and/or group level, and the economic and social conditions inherent to the lack of power (eg. poverty, low social status, unemployment) are major risk factors for poor health. Although some standard health education and community organizing models may share a commitment to improving health via change in the structure of society, the approach advocated by Paulo Freire (1970), called Participatory Education, differs from most models in that it redefines the role and status of the health educator or leader in the process of gaining power or taking action. “Empowerment” in the Freirian sense of the word emerges through full participation of the people affected by the problem or health condition (target group) in the process of dialoguing between equals culminating collectively in steps toward action. Everyone participates as an equal co-investigator in identifying and defining the problems of their community.

In discussing the role of empowerment as a health enhancing strategy Nina Wallerstein (1992) noted “Freire’s central premise is that the social context of education or, in this case, health education is not neutral. If people come from life situations that put them at risk for powerlessness and lack of control over their destiny, they carry that perspective with them into their interactions with professionals. Freire questions whether education reinforces powerlessness through treating people as objects to be manipulated, or whether education empowers people to question and challenge those forces that keep them powerless” (p.203).

The steps involved in Freire's participatory approach as applied to health education can be briefly summarized as follows: (1) "tuning in" to the target group's reality through participant observation and careful listening to people's life experience for the purpose of uncovering the issues identified by the people affected as problems and their significance to the people involved (2) engaging small groups of people in the process of dialogue, everyone is encouraged to participate as an equal in interpreting the problems and issues which emanated from the listening phase. This process of critical thinking, which Freire called *conscientización*, is facilitated by a "teacher-learner" whose role it is to "problem pose" or ask questions of the group. The goal is to illuminate the root cause of one's situation through uncovering the socioeconomic, political, cultural and historical context of personal experience. In some situations the use of visuals or other aids, may be recommended to codify or represent the themes and issues generated by the group. Visual representations are thought to stimulate discussion, and (3) developing personal and social action plans via the process of group reflection, dialogue and interaction. Empowerment, according to Wallerstein (1992) "evolves from the interaction of reflection and action, or praxis, that can transform social conditions. . . . Critical thinking about the social context unites people as members of a common community to transform inequitable social relations." (Wallerstein, 1992 p.204).



SUGGESTED READINGS

General Overviews

Leviton, L.C.(1989). Chapter 3, Theoretical foundations of AIDS-prevention programs. In Valdiserri (Ed): Preventing AIDS. The Design of Effective Programs. (pp 42-90). New Brunswick and London: Rutgers University Press.

Mays,V.M., Albee, G. W.,& Schneider, S.F. (1989). Part III: Theories, models and research on health, risk, and decision making. In Primary Prevention of AIDS,(pp.91-207), Newbury Park, London, and New Delhi: Sage Publications.

Health-Belief Model

Becker, M. H., & Joseph, J.G. (1988). AIDS and behavioral change to reduce risk. American Journal of Public Health, 78, 394-410.

Gielen, A., Faden,R., O'Campo,P., Kass, N., & Anderson,J. (1994). Women's protective sexual behaviors: a test of the health belief model. AIDS Education and Prevention, 6(1), 1-11.

Theory of Reasoned Action

Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention and behavior: An introduction to theory and research. Reading, MA: Addison-Wesley.

Social Learning Theory

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice-Hall.

Stages of Change

Prochaska, J.O., & DeClemente, C.(1986). Toward a comprehensive model of change. In: Miller, N.R., & Heather, N. (Eds.), Treating Addictive Behaviors, (3-27)), New York: Plenum Press.

Prochaska, J. O., DeClemente, C., & Norcross, J, C.(1992). In search of how people change: Applications to addictive behaviors. American Psychologist, 47 (9), 1102-1114.

Diffusion of Innovation

Rogers,E. (1983). Diffusion of Innovations. New York: Free Press.

Participatory Education

Friere, P. (1970). Pedagogy of the Oppressed. New York: Seabury, Press.

Friere, P. (1990). Education for critical consciousness. New York: Continuum.

Wallerstein, N. (1992). Powerlessness, empowerment and health: Implications for health promotion program. American Journal of Health Promotion, 6 (3), 197-205.

Wallerstein, N., & Bernstein, E. (1988). Empowerment education: Friere's ideas adapted to health education. Health Education Quarterly, 15, 379-394.

Werner, D., & Bower, B., (1982) Helping health workers learn. Palo Alto, CA: The Hesperian Foundation.

APPENDIX B

II

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Individual Level Interventions: Gay and Bisexual Men and Men Who Have Sex with Men

Theoretical Models	How Implemented	Goals	Outcome Measures	Key Findings	Key Studies	Limitations
Health and Educational Principles	Pre and post test counseling associated with testing. Peer or professionally led health education	Individual behavior change Entry into clinical care Partner	Biological measures Serological status Rates of STDs Sexual behavior:	Statistically significant association of knowledge of serologic status and practice of practice of high risk behaviors-HIV+	Hennekens & Buring, 1987 Higgins et al, 1991	Formal evaluation limited Provided data base on sexual behavior not on effectiveness of intervention. Does not evaluate change over time, confounding factors - motivation and voluntary of selected respondents



Group Level Intervention: Gay and Bisexual Men and Men who have Sex with Men

Theoretical Models	How Implemented	Goals	Outcome Measures	Key Findings	Key Studies	Limitations
<p>Social Learning Theory</p> <p>Cognitive Behavior Theory</p> <p>Theories of Self Efficacy</p> <p>Stress reduction and self management</p> <p>Theory of Reasoned Action</p> <p>Diffusion of Innovation Theory</p>	<p>Use of professional educators and local key community opinion leaders.</p> <p>Trained key opinion leaders</p> <p>Use of multi-media; videos, lectures, training, role plays, brochures</p>	<p>Skill building</p> <p>Erotizing of safer sex practices</p> <p>Knowledge of HIV transmission</p> <p>Reduction of sexual risk practices</p> <p>Improve negotiation and communication skills</p> <p>Stress management and enhanced immune function</p>	<p>Biological measures- sero status, immunological evaluation</p> <p>Self report surveys: sexual risk behaviors; number of unprotected anal and oral intercourse, number of times condoms used, number of sexual partners</p>	<p>Overall decrease in magnitude of sexual activity- those receiving skills training more likely to use condoms.</p> <p>Negotiation skills training and role play improved results of intervention.</p> <p>Men who practice insertive anal intercourse found more likely to use condoms than men who practice receptive anal intercourse</p> <p>Overall increase in condom use, decrease in incidence of unprotected anal intercourse</p> <p>Shortened length of time for intervention found not to compromise effectiveness of intervention</p> <p>Reduced number of partners</p> <p>No change in immunological functioning associated with stress management</p>	<p>Coates et al, 1989</p> <p>Kelly et al, 1989</p> <p>Kelly et al, 1990</p> <p>Kelly & Murphy 1992</p> <p>Valdisarri et al, 1989</p>	<p>Duration of intervention may have too short to engage target group</p> <p>Possible confounding of results due to secular trends</p> <p>Self selection of sample</p> <p>Generally limited to white, middle class, well educated middle age men who identify with gay life-style</p>

Community Level Interventions: Gay and Bisexual Men and Men Who Have Sex With Men						
Theoretical Models	How Implemented	Goals	Outcome Measures	Key Findings	Key Studies	Limitations
<p>Diffusion of Innovation</p> <p>Social inoculation</p> <p>Cognitive-Behavioral</p> <p>Theories of Self-Efficacy.</p>	<p>Use of professional educators and local key community/opinion leaders</p> <p>Targeting and training of key opinion leaders</p> <p>Use of multi-media approach - videos, lectures, training, role plays, brochures</p>	<p>Development of social support systems that promote healthy risk-reduced behavior</p> <p>Distribution of information and materials to practice safer sex and drug behavior</p> <p>Teaching of key figures in the community to promote health and risk reduction</p> <p>Maintenance of health motivated risk reduction practices.</p>	<p>Self-report surveys: assessment of sexual and drug behavior over time, att attitudes toward HIV and risk knowledge of HIV and transmission, reasons for risk-taking behavior, HIV serologic status, psychosocial variables</p>	<p>Overall interventions produced consistent reductions in high-risk behavior : decreased episodes of unprotected anal intercourse, increased use of condoms, decreased number of sexual partners</p> <p>Social influence important: those with peer support more likely to change behavior</p> <p>Relapse has become the predominant high risk pattern of behavior</p> <p>Important variables impacting on safer sex practices: age, closetedness, relationship status, race and ethnicity</p>	<p>Coates, et. al., 1989;</p> <p>Kelly et. al., 1989;</p> <p>Kelly et. al., 1990;</p> <p>Kelly & Murphy, 1992</p> <p>Valdisarri, et. al., 1989.</p>	<p>No use of biological measures</p> <p>Inability to correlate effectiveness of intervention with particular components of the interventions</p> <p>Confounding factors- such secular trends, self selection,</p> <p>Finding limited to generally well educated, up-wardly mobile, middle age white men.</p>

Interventions Targeted to Commercial Sex Workers						
Theoretical Models	How Implemented	Goals	Outcome Measures	Key Findings	Key Studies	Limitations
<p>Health Belief Model</p> <p>Harm Minimization</p> <p>Diffusion of Innovation</p> <p>Social Influence</p> <p>Cognitive-behavioral skills training</p>	<p>Aggressive peer led street outreach</p> <p>Individual counseling and testing at testing sites</p> <p>Small group education sessions targeting CSWs and clients</p> <p>Community based peer-led education programs</p>	<p>Individual behavior change</p> <p>Cease participation in CSW</p> <p>Dissemination of educational and protective materials</p> <p>HIV anti-body testing and entry to clinical treatment</p> <p>Entry into drug treatment programs</p> <p>Consistent condom use</p> <p>Maintenance of personal safety working on the streets</p>	<p>Biological-sero status rates, STD rates of infection</p> <p>Self report surveys: condom use</p> <p>drug practices</p> <p>number of sexual partners</p> <p>knowledge, attitudes and beliefs about HIV and transmission</p>	<p>availability of condoms important to safer sex practice</p> <p>Increased condom use with clients but not steady partners</p> <p>Decrease in high risk behavior attributed to peer led interventions</p> <p>Increased condom use coupled with lower sero-conversion rates</p> <p>Increased knowledge of susceptibility and vulnerability to risk of infection</p>	<p>Asaniag, et al, 1994</p> <p>Asanoah, et al, 1994</p> <p>Corby, et al, 1990</p> <p>Ngugi, et al, 1988</p>	<p>Few intervention formally evaluated</p> <p>Logistical problems with cohorts, high mobility and reluctant to participate</p> <p>Self report behavior change</p> <p>Population hard to access</p>

Individual Level Interventions: Adolescents						
Theoretical Models	How Implemented	Goals	Outcome Measures	Key Findings	Key Studies	Limitations
<p>Theory of Reasoned Action</p> <p>Social Inoculation</p> <p>Cognitive Behavioral</p> <p>Social Cognitive</p> <p>Health Belief Model</p>	<p>One to one counseling in clinical settings</p> <p>Peer or professionally led health education sessions</p> <p>Use of must-media; videos, games, brochures, lecture</p>	<p>Changing social norms to support safer sex</p> <p>Acquisition of new skills and knowledge</p> <p>Heighten awareness of susceptibility and vulnerability to risk</p> <p>Self efficacy</p> <p>Identification of risk as function of behavior not group affiliation</p> <p>Abstinence and condom use</p>	<p>Generally self report surveys measuring: Knowledge about HIV/AIDS Attitudes toward reducing high risk behavior Intentions to alter behavior Number of acts of sexual and drug risk behavior Number of sexual partners</p>	<p>Increased knowledge of effectiveness of condom use and bleach to clean drug equipment</p> <p>No change in overall sexual behavior- found in some studies</p> <p>Reductions in sexual risk behavior found in some studies.</p> <p>Behavior changes in certain subsets of sexually active adolescents found in some studies</p> <p>Peer led interventions more effective in changing injection drug risk behavior, professionally led interventions had more impact on sexual risk behaviors</p>	<p>Eisen, Sellman & McAllister, 1990</p> <p>Howard & Blamey-McCabe, 1990</p> <p>Kirby, et al, 1991,</p> <p>Walter & Vaughan, 1993</p>	<p>Assessment of changes in knowledge versus changes in behavior</p> <p>Focus on use contraceptive use related to reproduction, not specifically condom use OR HIV risk</p> <p>Follow up measures are limited, no information on long term effect</p> <p>Gender differences unexplored</p>

Group Level Interventions: Adolescents

Theoretical Models	How Implemented	Goals	Outcome Measures	Key Findings	Key Studies	Limitations
<p>Health Belief Model</p> <p>Social Learning Theory</p> <p>Cognitive-Behavioral Theory</p> <p>Social Inoculation Theory</p>	<p>Peer and professionally led health education sessions in schools</p> <p>Teacher led and health education specialist led sessions on HIV prevention and sex education</p> <p>Multi-media: interactive games, lectures, videos</p> <p>Number of session ranged from 4-15</p>	<p>Delay initiation of sexual activity</p> <p>Abstinence</p> <p>Increase factual knowledge of HIV</p> <p>Modify values, feelings, emotions, increase personal responsibility about behavior</p> <p>Change social norms regarding unsafe sexual practice</p> <p>Improve decision making skills</p> <p>Improve skills: resistance to pressure, assertiveness, negotiation</p> <p>Reduce sexual risk behavior</p>	<p>Knowledge of STDs and their prevention</p> <p>Contraceptive use</p> <p>Reported reasons for becoming sexually active</p> <p>Initiation of sexual activity</p> <p>Knowledge and beliefs about HIV</p> <p>Awareness and perceived risk of HIV infection</p> <p>Perceived benefits of risk reduction</p> <p>Barriers to risk reduction</p> <p>Self- efficacy</p> <p>Changes in high risk sexual behavior</p>	<p>All achieved measurable success in post-poning the initiation of sexual activity</p> <p>one study success limited only to males effect differed by gender</p> <p>Improved knowledge, beliefs related to sexuality and HIV</p> <p>Reduced sexual activity</p> <p>Increased condom use</p>	<p>Eisen, Zellman & McAllister, 1990</p> <p>Howard & Blamey-McCabe, 1990</p> <p>Kirby, et al., 1991</p> <p>Walter & Vaughan, 1993</p>	<p>Assessment of specific impact of intervention on knowledge and behavior is limited</p> <p>Focus is on reproductive and contraceptive issues, outcome measures are not specific to HIV risk</p> <p>Difference in effect by gender are unexplored</p>

Community Level Interventions: Adolescents

Theoretical Models	How Implemented	Goals	Outcome Measures	Key Findings	Key Studies	Limitations
<p>Social Cognitive Theory</p> <p>Diffusion of Innovation</p> <p>Theories of self-efficacy</p> <p>Problem solving/decision making theories</p>	<p>Use of community organizations for prevention programs</p> <p>Culturally tailored prevention programs informed by focus groups of members of target community</p> <p>Small group sessions led by peers and professionals</p> <p>Multi-media presentations; film, video, role plays, brochures</p>	<p>Increase self-efficacy for condom use</p> <p>Negotiation skills with sexual partner</p> <p>Enhance attitudes toward condoms</p> <p>Coping skills training</p> <p>Behavioral self management</p> <p>Change social norms to support safer sex behaviors</p> <p>Increase condom use</p> <p>Distribute condoms, make condoms available</p> <p>Improve parent/child communication</p> <p>Build social supports</p>	<p>Intention to use condoms</p> <p>Outcome expectancies around condom use</p> <p>Perceived self-efficacy of condom use</p> <p>Knowledge of HIV/AIDS, and STD transmission</p> <p>Self reported sexual risk behaviors: unprotected receptive anal intercourse occasions, number of partners</p> <p>Abstinence</p>	<p>Increased self-efficacy and positive outcome expectancies</p> <p>Increased numbers of protected/safe acts of sexual intercourse</p> <p>Reduction in numbers of anal and oral high risk sexual acts</p> <p>Differences in effect found between ethnic groups</p> <p>No impact CSW among teens</p> <p>Increased knowledge about HIV/AIDS</p> <p>Improved family problem solving skills</p> <p>Effect related to number of interventions in some studies</p> <p>Delayed onset of sexual activity</p> <p>No increase in sexually active among those sexually active prior to intervention</p>	<p>Jemmott & Jemmott 1992</p> <p>Rotherman-Borus et. al., 1991</p> <p>Rotherman-Borus, Reid and Rosario, 1994</p> <p>Winnet, et. al., 1992</p>	<p>Intention to use condoms does not translate into actual behavior</p> <p>Limited follow-up time, long term effect unknown</p> <p>Lack of comparison or no treatment in study designs</p>



HIV/AIDS Prevention Intervention in Patients of Sexually Transmitted Disease Clinics

Theoretical Models	How Implemented	Goals	Outcome Measures	Key Findings	Key Studies	Limitations
<p>Social Marketing</p> <p>Theories of self-efficacy</p> <p>Theory of Reasoned Action</p> <p>Social Influence Theory</p> <p>Social Cognitive Theory</p>	<p>Individual counseling with and without HIV anti-body testing</p> <p>Health education in small groups</p> <p>Multi-media: videos, pamphlets, discussions, lecture</p> <p>Ethnically sensitive education materials</p>	<p>Increase use of condoms</p> <p>Reduction of high risk behavior</p> <p>Reduction of recurrent STD infections</p> <p>Testing</p> <p>Improved knowledge, attitudes and beliefs related to HIV</p> <p>Strategies for negotiating condom use</p> <p>Change social norms</p> <p>Conflict/problem solving skills</p> <p>Eroticizing condom use</p>	<p>Biological measures: HIV sero-positivity rates of STD infection</p> <p>Self reported behavior surveys: number of sexual partners, number of times condoms used, measure of HIV related knowledge, attitudes and beliefs</p> <p>Condom reclamation coupons</p>	<p>HIV anti-body testing shown to reduce some high risk behaviors in some studies, mixed results</p> <p>Intervention groups less likely to have repeat STD infections (limited to men)</p> <p>Increased favorable attitudes toward condom use</p> <p>Reduction in high risk behavior with heterosexual populations</p> <p>Moderate decrease in sero-positivity rates</p> <p>Videos useful with subgroups of participants with little education</p> <p>No difference found in condom use between experimental and comparison groups in some studies</p> <p>Increased perceived risk of HIV infection</p>	<p>Cohen, et. al., 1990</p> <p>Solomon & Dejong, 1989</p> <p>Wengar, et. al.,</p> <p>Zenilman, 1992</p>	<p>Focused heavily on heterosexual high risk populations</p> <p>Gender differences unexplored</p> <p>Confounded by secular trends in risk reduction</p>

Risk Reduction Interventions: Injection Drug Users

Theoretical Models	How Implemented	Goals	Outcome Measures	Key Findings	Key Studies	Limitations
<p>Cognitive- Behavioral Theory</p> <p>Health Belief Model</p> <p>Theory of Reasoned Action</p>	<p>Counseling and testing</p> <p>Educational counseling</p> <p>Delivered in drug treatment program and on streets</p> <p>Written health education material and group health education sessions led by health educators</p>	<p>Entry into drug treatment</p> <p>Increase use of condoms</p> <p>Cleaning drug equipment with bleach</p> <p>Decrease episodes of injection drug use</p> <p>Skills training in use of bleach and condoms</p> <p>Prevention of injection drug use</p> <p>Reduce incidents of injection drug equipment sharing</p>	<p>Biological measures: serological status,</p> <p>Self report surveys: attitudes and beliefs, use of condoms and bleach, counts of injection drug behavior, counts of cleaning equipment, counts of sharing injection equipment, counts of acts of sexual risk behaviors</p> <p>Initiation of drug treatment and retention in treatment programs</p>	<p>Individual and group counseling efforts have produced mixed results</p> <p>Moderate to large decreases in sero-conversion found and stabilization of rates in one study</p> <p>Self reported decreases in high risk sexual and drug behavior.</p> <p>Decreases in drug behavior sustained up to one year follow up.</p> <p>Improved knowledge of HIV</p> <p>Timing of intervention relative to detox treatment not significant</p> <p>Levels of injection drug use prior to intervention strong indicator of future injection behavior</p> <p>Moderate increase in condom use</p>	<p>Des Jarlis, et.al., 1992</p> <p>McCusker et. al.,1992, 1993</p> <p>Stephens, French & Roman,1991</p>	<p>Self selection in sample confounded by possible motivation , generalizability weak</p> <p>Possible treatment contamination</p> <p>Lack of randomization and "no treatment" groups</p>



Methadone Maintenance Interventions: Injection Drug Users

Theoretical Models	How Implemented	Goals	Outcome Measures	Key Findings	Key Studies	Limitations
<p>Harm Minimization Health Belief Model Social Learning Theory Relapse Prevention Health Psychology Principles Fear Arousal Theory Sub-theories of self-efficacy and outcome expectancy</p>	<p>Street outreach Small group skills training Small group meetings using lecture, role plays, skills practice,</p>	<p>Reduce of eliminate the use of injection drugs Adopt safer sex practices Improved problem solving skills Behavioral self-management</p>	<p>Measured by self reported surveys: -knowledge of HIV and transmission - skills in using bleach - Counts of condom use - Counts of injection drug use -Counts sharing injection drug equipment -Counts of cleaning injection equipment - Number of sexual partners - Incidents of unprotected sex</p>	<p>Experimental groups had significant increases in HIV knowledge, risk reduction practices, self-efficacy scores related to risk reduction in drug behavior and condom use Levels of favorable results were similar in detox and methadone maintenance patients Decreased injection drug use No significant difference found in condom use measures or numbers of sexual partners</p>	<p>Schilling, et. al, 1995 Sorenson, et. al., 1994 Yancowitz, et.al., 1991</p>	<p>Differences in the level of risk among the populations in detox or methadone maintenance Out-liers impacted findings to a considerable degree</p>

Needle Exchange Interventions: Injection Drug Users

Theoretical Models	How Implemented	Goals	Outcome Measures	Key Findings	Key Studies
<p>Harm minimization Circulation Theory</p>	<p>Distribution of sterile needles and syringes for injection drug use Needles and syringes were numbered and tracked over time</p>	<p>Reduce sero-conversion in IDU population Reduce incidence of drug risk behavior; sharing equipment</p>	<p>Biological: rates of sero conversion Testing of needles and syringes for presence of HIV Self reported sexual and drug high risk behavior</p>	<p>10 studies noted significant decrease in the sharing of equipment 3 studies demonstrated decrease in injection drug behavior Significant decrease in contaminated equipment returned No increase in number of drug using population</p>	<p>Kaplan & Heimer, 1994 Kaplan, Knoshnad & Heimer, 1994</p>

Community Level Interventions: Injection Drug Users

Theoretical Models	How Implemented	Goals	Outcome Measures	Key Findings	Key Studies	Limitations
<p>Diffusion of Innovation</p> <p>Social Marketing Theory</p> <p>Stages of Change Theory</p> <p>Social Learning Theory</p> <p>Conservation of Resource Theory</p> <p>Cognitive Behavioral Theory</p>	<p>Outreach using trained peer/local leaders former addicts</p> <p>Single sessions to several sessions weekly</p> <p>Use of multi-media, discussion, role play, written material, materials</p> <p>Community organizing, politicizing of active addicts</p> <p>Use of natural social structure of addicts and partners</p>	<p>Reduce sharing of injection equipment</p> <p>Reduce number of injections</p> <p>Increase use of condoms</p> <p>Decrease use of non-injection drugs</p> <p>Change social norms</p> <p>Entry in drug treatment</p>	<p>Biological measures-rates of sero conversion in given population</p> <p>Self reported surveys of behavioral outcomes</p> <p>-counts of sharing equipment</p> <p>-counts of number of injection</p> <p>-counts of number of times use of bleach</p> <p>-counts episodes of unprotected sex</p> <p>-counts numbers of sexual partners</p>	<p>Significant reduction in sharing of drug equipment</p> <p>Consistent condom use increased moderately</p> <p>Sero-conversion rates stabilized and decreased</p> <p>Moderate reduction in high risk sexual practice</p> <p>Mean number of injection decreased significantly</p> <p>Use of peer/recovering addict appears effective</p>	<p>Chitwood, et al., 1990</p> <p>Hobell, et al., 1994</p> <p>Stephens, et. al. 1991</p> <p>Sufian, et al., 1991</p> <p>Watters, et. Al., 1990</p> <p>Weibel, et. al, 1993</p>	<p>High attrition rates of sample during follow up. Researchers were unable to determine if those unavailable for follow-up differed from those available in a way which would have influenced the results.</p>

APPENDIX C

III

HIV/AIDS PREVENTION AND EDUCATION EVALUATION PROJECT

BUSPH PHONE INTERVIEW

Instructions for interviewers: Statements and comments in *bold and italics* should be read; statements in *italics* alone are probes that should be used IF the information did not emerge spontaneously in the first question. Comments within {brackets} should be replaced with the specific intervention, program name, target population, etc. specified within the bracket.

Introduction: [Review: letter that was sent. Be sure they received it. If not, send a new copy before continuing interview.] *We are conducting phone interviews with directors from various HIV/AIDS prevention and education programs throughout the state. Our goal is to determine how these DPH-funded programs determine what interventions to use to be effective in the prevention of HIV/AIDS. We would like to ask you a series of questions that will help us to gain a sense of the specific goals of your program, how you are achieving them, and why have you chosen the interventions you are conducting.*¹

DATE OF CALL: ___/___/___

NAME OF AGENCY: _____

INFORMANT'S NAME: _____

TITLE:

PHONE NUMBER: () _____ Ext.

INTERVENTION TYPE FOR INTERVIEW: _____

¹Do we want to state that whatever they say will be confidential??? They will not be judged?



HIV/AIDS PREVENTION AND EDUCATIONS EVALUATION PROJECT

BUSPH PHONE INTERVIEW

PART I *I would like to start by asking you some general questions about your program as a whole.*

(Q1) *Could you please describe the target population or populations you serve?*

[Probe: for gender, race, sexual orientation, age]

Do you serve primarily adults, adolescents, children, families?

[Probe for specific age groups: Children (0-13); Teens (14-19); Young Adults (20-29); Adults (30-49); Older Adults (50+)]

What racial or ethnic groups do you specifically target?

[Probe for African American; Latino/as; Caucasian/non-Hispanic; Haitian; Asian/Pacific Islander; Native American/Alaskan Native; Caribbean/other islander; Other]

Does your program target primarily: Males, Females, Both, or Other

Which sexual orientation[s] does your program primarily target?

Probe for Heterosexual with Female Partner, Heterosexual with Male Partner; Gay Men; Gay Women/ Lesbians; Bisexual Men; Bisexual Women; Bisexual Men and Women; Men who have sex with men or Other

(Q2) *how many Full time employees (or equivalents) do you have?
How many part time employees (or equivalents) do you have?
How many Peer Leadership staff do you have?
Roughly how many hours of Volunteer work do you have?
How many Paraprofessional workers do you have?*

(Q3) *Now you say you serve primarily [target group].
What percentage of your staff are [target group] members?
What percentage of your board are [target group] members?*

(Q4) *Could you please describe the interventions you use in your program?*
TAKE NOTES ON THE [INTERVENTION] TYPE

PART II *Now I would like to ask you some questions specifically about {name the intervention category selected for this interview} you mentioned a minute ago.*

(Q5) *Please describe your {target intervention}*

Probes. *where does your program delivers the {name intervention selected} you just described.*

[PROBE FOR WHERE EACH TAKES PLACE: in community settings "the street"; school; PSE's; social service agency; on radio/TV [probe in what language]; private setting; clients' homes; a health agency; using media such as posters]

Who is this {intervention} targeted to?

Who delivers it?

Do they receive training? Please describe.

Could you describe the educational level of the staff that deliver this intervention? Any comments on their overall training and skills?

(Q6) *Let's talk about these {name target population}: What are some of the reasons why you think they are at risk for acquiring HIV?*

(Q7) *Could you describe the specific type[s] of of risky behaviour your program interventions seek to change.*

[Probe for different behaviors such as Sexual, IV Drug Use, other drug use.

(Q8) *Now, could you think again about a typical case but this time about a "success story." Tell me a little about this case.*

In general, what would you say is the primary goal of your {name intervention}?

What behavior are you seeking to change? Please be as specific as you can

[Probes] *While we're interested in "what you do" we're even more interested in what changes occur when you feel the intervention is a success?*

What is it about your intervention that you think helps your client/target population prevent HIV infection?

How do you attempt to elicit such change?

(Q9) ***We're interested in finding out more about the driving force of your intervention. What is the primary framework /model upon which your program's intervention is based?***

(Probe to determine main theory driving the intervention).

What are some of the notions behind your intervention - what works, what are you trying to achieve?

Is the [information/skills/training/etc] you provide designed to make client feel

- more personally at risk? How does it do this? Can you give me an example?*
- change their attitudes about safe sex/drug use? Can you give me an example?*
- increase their confidence in abilities to negotiate with partner, use condoms/bleach, or avoid risky situations? Can you give me an example?*
- know how to resist pressure from their friends and peers to engage in risky behaviour? Can you give me an example?*
- improve one's skills or ability to use condoms/bleach more effectively? Can you give me an example?*

Do you take the same approach with all of your clients, or is the approach more specific, depending on where someone is/how they are doing?

When you described the [name the intervention] is it delivered once or over time? What kind of follow-up, if any, do you do?

Why do you think this intervention "works"? In other words, we're interested in knowing HOW you think this specific intervention will change your clients' behavior around HIV risk?

[Using what respondent says, ask:] *How does the {name the intervention} help to prevent infection? Does it change something about what they think, what they do, or*

how they act?

[Probe:] *why do you think it does?*

I noticed that in your proposal you mentioned your program is based upon [_____] theory of behaviour change. Who made the decision to base it on that theory? How do you think this works in your program?

- (Q10) *Could you think for a moment about a {name group or individual or community target population} that has been frustrating in terms of changing his/her/their behavior around risk for HIV? Would you say that, of your frustrating cases, would this be typical? [If not, ask for one that is typical].*

What is it about that individual that makes changing behavior difficult for him/her?

What are the factors that get in the way of {name the target population like the typical case} being able to reduce their risk for HIV?

[Probe for lack of knowledge, certain beliefs, attitudes about vulnerability, peer/social pressure, SES, poor self esteem, cultural norms or values, psychological problems, interpersonal problems]

- (Q11) *Now I'd like to ask some questions about how your {name the intervention category} was designed.*

What kinds of information and/or input informed the design of {name the intervention}?

[Probe] *Did you receive any input from community meetings*

Focus Groups

hearings

Meetings with providers/ parents/ teachers

Meetings with local officials

Meetings with community groups or activists

Researchers?

Consultants?

[If they say yes to researchers or consultants, ask what the researchers or consultants do.]

PART III *Now I'd like to ask about how you determine whether the intervention is really being delivered the way it was intended or designed to be delivered?*

(Q12) *Do you think your program or intervention is effective?*

How do you know?

What indicators or kinds of information do you rely on to tell if you are succeeding or not?

[Probe for:] Health data or other types of counts; Feedback from clients/ target group; Feedback from providers/ local officials/ teachers etc; *Are there any other types of information.*

(Q13) *Do you carry out any formal evaluation process at your program?*

[Probe for] Surveys; Direct Observation, Feedback from clients/ target group etc.; Counts of visits, condoms, bleach kits;

Who collects the data?

Who uses the data?

(Q14) *Do you feel you have sufficient resources to meet your program's objectives?*

[If no] *What additional resources would you need?*

PART IV Other topics

(Q15) *Are there any topics we haven't covered that you'd like to add or comments you'd like to make that would help us understand your program?*

APPENDIX D

IV

TYPE	CODEWORD	PARENT	DEFINITION
Text	CDC	THEORY	Any of the 6 principles: multiple levels; individualized approach; real needs, comm. collab.; defined audience, objectives, intervention; sufficient resources; quality monitoring.
Text	DIALOGUE	GENERAL	Evidence OR LACK THEREOF of a dialogue or interaction between academic theory/research and practice; between researchers and practitioners
Text	EXPLICIT	THEORY	Evidence within the interview that the intervention is based on an explicitly articulated social/behavioral theory.
Text	IMPLICIT	THEORY	Evidence within interview that intervention stems from social/behavioral theory even though the theory is not articulated as such.
Text	MIX	THEORY	Evidence that theories that inform intervention are not discrete or articulated but either implicit from within or complexly intermixed; multiple perspectives in practice.
Text	NEG-FACTOR	THEMES	Same as Q10 but can be outside of response to the question; can appear elsewhere in interview. Code both for Q10.
Text	POSITIVE	THEMES	Statements or evidence within the interview of how project is contributing substantially to HIV prevention; the positive aspects of the project's work/staff; evidence of how lots of work gets done, effectiveness, being "on target" with theory.

TYPE	CODEWORD	PARENT	DEFINITION
Text	PROBLEMS	THEMES	Evidence that the project is making an effort but, for whatever reason, is lacking in effectiveness, "doing a good job BUT...."; this evidence can be a statement from interviewee or a deduction by interviewer/ data analyst.
Text	Q01	INTERVIEW	Target population
Text	Q02	INTERVIEW	Staffing; #, training, education (from Q5)
Text	Q03	INTERVIEW	Details on representativeness of Board.
Text	Q04	INTERVIEW	Description of the total organization/agency program -- more than just the intervention at the focus of the interview.
Text	Q05	INTERVIEW	Description of the interventions that are offered at the project.
Text	Q06	INTERVIEW	Why interviewee thinks target populations served are at risk.
Text	Q07	INTERVIEW	What behaviors the intervention seeks to change.
Text	Q08	INTERVIEW	The "success story."
Text	Q09	INTERVIEW	The driving force, notions behind the intervention. (See WHY-DO-IT; will overlap with that code but WHY-DO-IT can occur within or outside of Q9 whereas Q9 is the whole response to the question #9).

TYPE	CODEWORD	PARENT	DEFINITION
Text	Q10	INTERVIEW	The "frustrating case" - factors that make it difficult to change behavior including but not only: lack of knowledge, attitudes ab. vulnerability, beliefs, cultural norms/values, psych or interpersonal problems, poor self esteem, peer/soc. pressure
Text	Q11	INTERVIEW	Input into design of project; input from community and/or researchers, etc.
Text	Q12&13	INTERVIEW	Anything about evaluation activities in project and/or quality monitoring
Text	Q14	INTERVIEW	Need for additional resources (when expressed outside of Q14 use CDC.)
Text	QUOTES	GENERAL	Any statement that we might want to highlight for inclusion in reports, etc.
Text	RELATIONS	GENERAL	Evidence that what is important in HIV prevention is the credibility and relationship of provider; includes: nonjudgemental and accepting/respectful attitudes; communication, "speak from the heart," "create consistency," "don't be pushy," etc.
Text	WHATTHEYDO	THEMES	Description of the intervention, services, activities, programmatic details of the funded project. Exs: condom distribution, safety net parties, talks, classes, etc.

TYPE	CODEWORD	PARENT	DEFINITION
Text	WHY-DO-IT	THEMES	Why they do what they do; why it works; how it achieves change; includes goals, whether it focuses on changing attitudes, how people think, act, believe, information, relationships, etc.

APPENDIX E

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH PREVENTION & EDUCATION DATA FORM

To be completed after every P&E contact (excluding Outreach):

IDENTIFIER ASSIGNED BY DPH _____ DATE OF CONTACT: ____ / ____ / ____
Month Day Year

SITE OF CONTACT^a: __ ON-SITE (Within Program offices)
 __ OFF-SITE (Outside Program offices)

TOTAL DURATION OF CONTACT: # Hours __ # Minutes __

ACTIVITY TYPE^{a, b}: __ Individual Education/Counseling (one-on-one)
 __ Group Education
 __ Community Forum

ZIPCODE OF LOCATION OF ACTIVITY _____

In what languages was Contact conducted? (Check all that apply)

- Spanish
- English
- Vietnamese
- Chinese
- Cambodian
- Other Asian
- Haitian Kreyol
- Portuguese
- Cape Verdean Creole
- ASL
- Other

^a Training Manual will provide detailed description of field.

^b DPH Staff to develop/clarify definitions.

WHAT IS THE SETTING ? (Check one category that best describes where activity occurred)

- School
- Youth Services Agency
- Alternative Education Program
- Shelters
- Supportive/Transitional Housing
- Prison
- Mental health facility
- STD clinic
- Community Health Center
- Family planning clinic
- Other health care agency
- Other social service community group/agency
- Worksite
- Social club
- Bars
- Drug treatment program
- Church/Temple
- Housing development
- Other

CONTENT OF CONTACT: (Check all that apply)

- Education about transmission mode
- Skills on sexual risk reduction
- Skills on drug use risk reduction
- Skills for communication with partner

WHO IS THE AUDIENCE?

For **GROUP** activities, code the number of participants within each category; for **INDIVIDUAL** activities, code responses for only the individual.

TOTAL NUMBER OF CLIENTS FOR THIS CONTACT: _ _ _ _

GENDER: # Female Clients _ _ _ _

Male Clients _ _ _ _

Transgender/Transexual _ _ _ _

Not Determined _ _ _ _

Is this an actual count or an estimate? __ Actual _ Estimate

SEXUAL ORIENTATION

Hetersexual _ _ _ _

Gay _ _ _ _

Lesbian _ _ _ _

Bisexual _ _ _ _

Other _ _ _ _

Not Determined _ _ _ _

Is this an actual count or an estimate? __ Actual _ Estimate

ETHNICITY:^b (NOTE: DPH needs to decide how to code ethnicity/race. Currently all AIDS Bureau data forms have different categories for this field.

# African American/ Black (Not Latino)	___	# Native Amer.	___
# Asian	___	# Portuguese	___
# Brazilian	___	# Carribean	___
# Cape Verdean	___	# White (Not Latino)	___
# Haitian	___	# Other	___
# Latino/a	___	# Not determined	___

Is this an actual count or an estimate? Actual Estimate

AGE:

# Under 12 yrs (Elementary)	___
# 13-14 yrs (Middle School)	___
# 15-19 yrs (High School)	___
# 20-29 yrs	___
# 30-49 yrs	___
# 50+ yrs	___
# Not Determined	___

Is this an actual count or an estimate? Actual Estimate

RISK:^b (NOTE: DPH Staff need to decide if they want a "multiple risk" category and/or whether a priority for categories should be determined)

- # Unprotected sex with another male _ _ _ _
- # Sharing injection needles or equipment _ _ _ _
- # Alcohol or substance abuse with sex _ _ _ _
- # Sex for drugs, money or shelter _ _ _ _
- # Unprotected sex with multiple sex partners _ _ _ _
- # Unprotected sex with person at risk _ _ _ _
- # Other _ _ _ _
- # Not Determined _ _ _ _

Is this an actual count or an estimate? __ Actual _ Estimate

APPENDIX F

VI

SUMMARY OF EVALUATION TRAINING COMPONENT

The Evaluation Training Component consisted of four training workshops. All were planned and facilitated by Drs. Amaro and McCloskey. The first was structured as a "Learning Opportunity" for all members of the MPPG, and the three follow-up workshops were conducted in the context of Evaluation Sub-committee meetings. The overall goal of the training component was to enable MPPG members to understand the connections between program design and evaluation planning and to assist DPH in making decisions related to their overall strategies for the evaluation of all HIV prevention programs. Below the specific objectives and content of each workshop are summarized:

Workshop #1 (MPPG Learning Opportunity) "*A Framework for Making the Connection between Program and Evaluation Design*" (April 13, 1995)

Objectives: 1) To introduce MPPG members to basic concepts of evaluation and present a framework which serves as the basis for program and evaluation design; and 2) to enable the group to complete the framework (i.e. identify underlying risk conditions and risk behaviors which are the basis for program activities) for one example of an HIV prevention program for one of the DPH target populations.

Content: The presentation included the definition of evaluation, common evaluation questions, and types of evaluations; the specification of evaluation stakeholders; the definition of "goals", "process objectives" and "outcome objectives"; the reasons evaluations are undertaken; and an introduction to the framework for program and evaluation design. (Please refer to Appendix 1.) Drs. Amaro and McCloskey then led a discussion which resulted in the completion of the framework for one example of an HIV prevention program. The target population selected was women partners of IV drug users, and the program developed was an empowerment workshop series for these women and their partners offered in the context of concrete services and social supports.

Workshop #2: (Evaluation Subcommittee Meeting)--"*Goals and Objectives: The Foundation of Program Evaluation*" (April 13, 1995)

Objective: To enable sub-committee members to develop a set of process and outcome objectives to describe the program developed during Workshop #1 and serve as the foundation of the evaluation plan for the program.

Content: Workshop #2 was a working session. First sub-committee members discussed key evaluation issues raised by the morning discussion during Workshop #1. Then the group developed a set of process and outcome objectives which described the program developed during Workshop #1 and could serve as the basis for an evaluation of the program. These objectives were later fleshed out further by the trainers. (Please refer to Appendix 2a and 2b.)

Workshop #3: (Evaluation Sub-committee Meeting)--"*Evaluation Design and Methods*" (May 24, 1995 re-scheduled for June 14, 1995)

Objective: 1) To introduce sub-committee members to a wide range of study designs and methods employed in evaluations, their strengths and limitations, and their appropriate uses; and 2) To enable sub-committee members to apply their understanding of evaluation design to the program objectives developed in Workshop #2.

Content: Drs. McCloskey and Amaro co-led an open discussion of ten major types of evaluation designs, raising their strengths and weaknesses and providing examples of their use in the context of the program designed in prior workshops, as well as other HIV prevention programs. They then summarized key evaluation issues to be considered in selecting and implementing an evaluation design, and distributed a handout which summarized the primary data collection techniques used for program evaluation, including process and outcome evaluation. (Please refer to Appendix 3.)

Workshop #4: (Evaluation Sub-committee Meeting)--"*Process Evaluation*". (July 13, 1995)

Objective: To enable sub-committee members to design a process evaluation for the program designed in prior workshops.

Content: Dr. McCloskey led a discussion of the value and uses of process evaluation, examples of systems and methods used to implement process evaluation, and special considerations. The group then developed a plan for evaluating the process objectives for the sample program.

APPENDIX G

VII

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BIBLIOGRAPHY

Amaro, H. (1995). Love, sex, and power. Considering women's realities in HIV prevention American Psychologist, 50, 437-447

Asamoah-Adu, A., Weir, S., Pappoe, M., Kanlisi, N., Neequagy, A., & Lamptey, P. (1994). Evaluation of a targeted AIDS prevention intervention to increase condom use among prostitutes in Ghana. AIDS, 8, 239-246.

Bressler, J., Armstrong, K. (1995, March). Prevention of HIV & unplanned pregnancy in homeless women: Involving male sex partners. Paper presented at Behavioral Research Evaluation Program Targeting Communities of Color, Atlanta, GA.

Catania, J.A., Coates, T.J., Kegeles, S., Fullilove, M.T., Peterson, J., Marin, B., Siegel, D., Hulley, S. Condom use in multi-ethnic neighborhoods of San Francisco: the population-based AMEN (AIDS in Multi-Ethnic Neighborhoods) Study [published erratum appears in Am J Public Health 1992 Jul; 82(7):998]. American journal of Public Health, 82 (2): 284-7, 1992 Feb.

Catania, J.A., Coates, T.J., Stall, R., Turner, H., Peterson, J., Hearst, N., Dolcini, M.M., Hudes, E., Gagnon, J., Wiley, J. Prevalence of AIDS-related risk factors and condom use in the United States. Science, 258 (5085): 1101-6, 1992 Nov 13

Centers for Disease Control, U.S. Department of Health and Human Services. HIV/AIDS Prevention, (5), No.3, Winter 1994/95

Centers for Disease Control, U.S. Department of Health and Human Services. HIV/AIDS Surveillance Report, (7), No.1, June 1995

Chitwood, D., Inciardi, J., Mcbride, D., McCoy, C., Trapido, E.(1991). The Miami out-reach program. In A Community Approach to AIDS Intervention: Exploring the Miami Outreach Project for Injecting Drug Users and Other High Risk Groups. (pp.58-63). Westport, CT: Greenwood Press.

_____ (1991). Chapter 6: Postscript: Prevention/Intervention outcomes. In: A Community Approach to AIDS Intervention: Exploring the Miami Outreach Project for Injection Drug Users and Other High Risk Groups. (pp. 109-121). Westport, CT: Greenwood Press.

Choi, K. H., & Coates, T.J. (1994). Prevention of HIV infection. AIDS 8, 1371-1389.

Coates, T. J., McKusick, L., Kuno, R., & Stites, D. P. (1989). Stress reduction training changed number of sexual partners but not immune function in men with HIV. American Journal of Public Health, 79 (7), 885-887.

Coates, T. J. (1995, March). Looking back looking forward. Paper presented at the Behavioral

Research Evaluation Program Targeting Communities of Color, Atlanta, GA.

Coates, T. (1990) Strategies for modifying sexual behavior for primary and secondary prevention of HIV disease. Journal of Counseling and Clinical Psychology, 58 (1), 57-69.

Cohen, D. A., MacKinnon, K. P., Dent, C., Mason, H. R. C., & Sullivan, E. (1992). Group counseling at STD clinics to promote use of condoms. Public Health Reports, 107 (6), 727-731.

Corby, N. H., Wolitski, R. J., Thornton-Johnson, S. Tanner, W. M. (1991) AIDS knowledge, perception of risk, and behaviors among female sex partners of injection drug users. AIDS Education & Prevention, 3 (4), 353-366.

Corby, N.H., Wolitski, R.J., Thornton-Johnson, S., Tanner, W.M. AIDS knowledge, perception of risk, and behaviors among female sex partners of injection drug users. AIDS Education and Prevention, 3(4): 353-66, 1991 Winter

Des Jarlis, D.C., Casriel, C., Friedman, S. R., & Rosenblum, A. (1992). AIDS and the transition to illicit drug injection-results of a randomized trial prevention program. British Journal of Addiction, 87, 493-498.

Diaz, T., Chu, S., Byers, R., Hersh, B., Conti, L., Rietmeifer, C., Mokotoff, E., Fann, S., Boyd, D., Iglesia, L., Checko, P., Fredrick, M., Hernam, P., Herr, M. Samuel, M. (1994). The types of drugs used by HIV infected injection drug users in a multi-state surveillance project: Implications for interventions. American Journal of Public Health, 84, (12) 1971-1975

Dorfman, L. E., Derish, P. A., & Cohen, J. B. (1992). Hey girlfriend: an evaluation of AIDS prevention among women in the sex industry. Health Education Quarterly, 19 (1), 25-40.

Duke, S. I., Omi, J.(1991). Development of AIDS education and prevention materials for women by health department staff and community focus groups. AIDS Education & Prevention, 3 (2), 90-99.

Dwyer, R., Richardson D., Ross, M.W., Wodak, A., Miller, M.E. , Gold, J. (1994). A comparison of HIV risk between women and men who inject drugs. AIDS Education & Prevention, 6(5), 379-389.

Ehrhardt, A. A., Yingling, S., & Warne, P.A. (1991). Sexual behavior in the age of AIDS: what has changed in the United States? Annual Review of Sex Research, 2, 25-47.

Ehrhardt, A., Yingling, S., Warne, P.A. Sexual Behavior in the era of AIDS: What has changed in the United States? 1990

Eisen, M., Zellman, G. L., & McAlister, F. L. (1990). Evaluating the impact of a theory-based sexuality and contraceptive education program. Family Planning Perspectives, 22 (6), 261-271.

Ekstrand, M., Stall, R., Kegeles, S., Hays, R., DeMayo, M., & Coates, T. (1993). Safer sex among gay men: what is the ultimate goal? AIDS, 7, 281-282.

Ekstrand, M. L., Coates, T. J., Guydish, J. R., Hauck, W. W., Colette, L., & Hulley, S. B. (1994). Are bisexually identified men in San Francisco a common vector for spreading HIV infection to women? American Journal of Public Health, 84 (6), 915-919.

Ekstrand, M. L., & Coates, T. J. (1990). Maintenance of safer sexual behaviors and predictors of risky sex: The San Francisco Men's Health Study. American Journal of Public Health, 80 (8), 973-977.

El-Bassel, N., & Schilling, R. F. (1992). Fifteen-month follow-up with women methadone patients taught skills to reduce heterosexual AIDS transmission. Public Health Reports, 107, 500-504.

Emmons, C.A., Joseph, J. G., Kessler, R. C., Wortman, C. B., Montgomery, S. B., & Ostrow, D. G. (1986). Psychosocial predictors of reported behavior change in homosexual men at risk for AIDS. Health Education Quarterly, 13 (4), 331-345.

Fishbein, M., and Middlestadt, S. (1989). Using the theory of reasoned action as a framework for understanding and changing AIDS-related behaviors. In: Mays, Albee, Schneider, (Eds), Primary Prevention of AIDS. Psychological Approaches. (pp 93-110), Newbury Park, London, New Delhi: Sage Publications.

Freire, P. (1970) Pedagogy of the Oppressed. New York: Seabury Press

Gielen, A.C., Faden, R.R., O'Campo, P., Kass, N., Anderson, J. Women's protective sexual behaviors: a test of the health belief model. Aids Education and Prevention, 6 (1): 1-11, 1994 Feb

Grimley, D. M., Riley, G. E., Bellis, J. M., Prochaska, J. O. (1993) Assessing the stages of change and decision-making for contraceptive use for the prevention of pregnancy, sexually transmitted diseases, and acquired immunodeficiency syndrome. Health Education Quarterly, 20 (4): 455-70, 1993 Winter

Harvey, S.M. (1995, March). Context and meaning of reproductive decision making among inner city Latino couples. Paper presented at the Behavioral Research Evaluation Program Targeting Communities of Color, Atlanta, GA.

Hays, R. B., Kegeles, S. M., & Coates, T. J. (1990). High HIV risk-taking among young gay men. AIDS, 4, 901-907.

Hennekens, C.H., Buring, J.E., and Hebert, P.R. Implications of overviews of randomized trials. Statistics in Medicine. 6(3): 397-409, 1987 Apr-May.

Higgins, D. L., Galavotti, C., O'Reilly, K. R., Schnell, D. J., Moore, M., Rugg, D. L., & Johnson, R. (1991). Evidence for the effects of HIV antibody counseling and testing on risk behaviors. JAMA, 266 (17), 2419-2429.

Hobfell, S.E., Jackson, A.P., Lavin, J., Britton, P. J., Shepard, J.B. (1994). Reducing inner-city women's AIDS risk activities: A study of single, pregnant women. Health Psychology, 13 (5), 397-403.

Holtgrave, D., Guinan, M., & Curren, J. (in press). Principles of effective behavioral based interventions. Public Health Reports.

Howard, M., & Blamey-McCabe, J. (1990). Helping teenagers postpone sexual involvement. Family Planning Perspectives, 22 (1), 21-26.

Jemmott, L. S., & Jemmott, J. B., III. (1992). Increasing condom-use intentions among sexually active black adolescent women. Nursing Research, 4 (5), 273-279.

Kaplan, E.H., Khoshnood, K., & Heimer, R. (1994). A decline in HIV-infected needles returned to New Haven's needle exchange program: Client shift or needle exchange. American Journal of Public Health, 84 (12), 1991-1994.

Kaplan, E. H., & Heimer, R. (1994). HIV incidence among needle exchange participants: Estimates from syringe tracking and testing data. Journal of Acquired Immune Deficiency Syndromes, 7: 182-189.

Kelly, J. A., St. Lawrence, J. S., Stevenson, L. Y., Hauth, A. C., Kalichman, S. C., Diaz, Y. E., Brashfield, T. L., Koob, J. J., & Morgan, M. G. (1992). Community AIDS/HIV risk reduction: The effects of endorsements by popular people in three cities. American Journal of Public Health, 82 (11), 1483-1489.

Kelly, J. A., St. Lawrence, J. S., Hood, H. V., & Brasfield, T. L. (1989). Behavioral intervention to reduce AIDS risk activities. Journal of Consulting and Clinical Psychology, 57 (1), 60-67.

Kelly, J. A., St. Lawrence, J. S., Diez, Y. E., Stevenson L. Y., Hauth, A. C., Brasfield, T. L., Kalichman, S. C., Smith, J. E., & Andrew, M. E. (1991). HIV risk behavior reduction following intervention with key opinion leaders of population: An experimental analysis. American Journal of Public Health, 81 (2), 168-171.

Kelly, J. A., & Murphy, D. A. (1992). Psychological interventions with AIDS and HIV: prevention and treatment. Journal of Counseling and Clinical Psychology, 60 (4), 576-585.

Kelly, J. A., St. Lawrence, J. S., Betts, R., Brasfield, T. L., & Hood, H. V. (1990). A skills training group intervention model to assist persons in reducing risk behaviors for HIV infection. AIDS Education and Prevention, 2 (1), 24-35.

Kelly, J. A., Murphy, D. A., Washington, C. D., Wilson, T. S., Koob, J. J., Davis, D. R., Ledezna, G., & Davantes, B. (1994). The effects of HIV/AIDS intervention groups for high-risk women in urban clinics. American Journal of Public Health, 84 (12), 918-1922.

Kelly, J. A., Murphy, D.A., Sikkema, K. J., & Kalichman, S. C. (1993). Psychological interventions to prevent HIV infection are urgently needed. American Psychologist, 48 (10), 1023-1034.

Kirby, D., Barth, R. P., Leland, N., & Fetro, J. V. (1991). Reducing the risk: impact of a new curriculum on sexual risk-taking. Family Planning Perspectives, 23 (6), 253-263.

Latkin, C., Mandell, W., Oziemkowska, M., Vlahov, D., Celentano, D. (1994). The relationships between sexual behavior, alcohol use, and personal network characteristics among injecting drug users in Baltimore, Maryland. Sexually Transmitted Disease, 21 (3), 161-167.

Levitan, L.C. (1989). Theoretical foundations of AIDS-prevention programs. In Valdiserri (Ed.), Preventing AIDS The Design of Effective Programs. (pp. 42-90). New Brunswick and London: Rutgers University Press.

Mansfield, C. J., Conroy, M. E., Emans, S. J., & Woods, E. R. (1993). A pilot study of AIDS education and counseling of high risk adolescent in an office setting. Journal of Adolescent Health, 14, 115-119.

Martin, J. L. (1987). The impact of AIDS on gay male sexual behavior patterns in New York City. American Journal of Public Health, 77 (5), 578-581.

Mason, J., Preisinger, J., Sperling, R., Walther, V., Berrier, J., Evans, V. (1991). Incorporating HIV education and counseling into routine prenatal care: a program model. AIDS Education & Prevention, 3(2), 118-123.

Massachusetts Department of Public Health, AIDS Surveillance Units, 1994

Massachusetts Department of Public Health, AIDS/HIV Bureau and AIDS/HIV Surveillance Program, Massachusetts HIV/AIDS Quarterly Review, Winter, 1995

Mayberry, R. Behavioral Research and Evaluation Program Targeting Communities of Color: A Dissemination Conference on key findings for the prevention of HIV Disease. Rollins School of Public Health at Emory University. Institute for Minority AIDS Prevention Studies. Atlanta, Ga March 17-18 1995

McCusker, J., Stoddard, A.M., Zapka, J.G., Morrison, C. S., Zorn, M., & Lewis, B.F. (1992). AIDS education for drug abusers: Evaluation of short-term effectiveness. American Journal of Public Health, 82 (4), 533-539.

McCusker, J., Stoddard, A.M., Zapka, J. G., & Lewis, B. F. (1993). Behavioral outcomes of

AIDS educational interventions for drug users in short-term treatment. American Journal of Public Health, 83 (10), 1463-1466.

McElrath, K., Chitwood, D. D., Griffin, D. K., Comerford, M. (1994). The consistency of self-reported HIV risk behavior among injection drug users. American Journal of Public Health, 84 (12), 1965-1970.

McElrath, K., (1994). A comparison of two methods for examining inmates' self-reported drug use. International Journal of the Addictions, 29 (4), 517-524.

Murdaugh, H., Morris, R., Harrison, A., & Cozza, S. (1995, March). Innovations of methodology for HIV prevention among prisoners and other displaced populations. Paper presented at the Behavioral Research Evaluation Program Targeting Communities of Color, Atlanta, GA.

Ngugi, E. N., Simonsen N., Bosire, M., Ronald, R. A., Plummer, F. A., Cameron, D. W., Waiyake, P., & Ndinya-Achola, J. O. (1988). Prevention of transmission of human Immunodeficiency virus in Africa: Effectiveness of condom promotion and health education among prostitutes. Lancet, 10, 887-890.

Nyamathi, A. M., Leake, B., Flaskerud, J., Lewis, C., Bennet, C. (1993). Outcomes of specialized and traditional AIDS counseling programs for impoverished women of color. Research in Nursing & Health, 16 (1), 11-21.

Obot, E. G., Gaiter, J., Braithwaite, R., & Mayberry, R. (1995, March). Offense type and HIV risk perception among adolescents in correctional facilities. Paper presented at the Behavioral Research and Evaluation Program Targeting Communities of Color. Atlanta, GA.

Osmond, D. H., Page, K., Wiley, J., Garrett, K., Sheppard, H. W., Moss, A. R., Schragar, L., & Winkelstein, W. (1994). HIV infection in homosexual and bisexual men 18 to 29 Years of Age: The San Francisco Young Men's Health Study. American Journal of Public Health, 84 (12), 1933-1937.

Otten, M. W., Zaidi, A. A., Wroten, J. E., Witte, J. J., & Peterman, T. A. (1993). Changes in sexually transmitted disease rates after HIV testing and posttest counseling, Miami, 1988 to 1989. American Journal of Public Health, 83 (4), 529-533.

Papaevangelou, G., Roumeliotou, A., Kallinikos, G., Papoutsakis, G., Trichopoulou, E., & Stefanou, T. (1988). Education in preventing HIV infection in Greek registered prostitutes. Journal of Acquired Immune Deficiency Syndromes, 1, 386-389.

Pequegnat, W., Page, B., Strauss, A., Amaro, H., Goldstein, P., Fritz, P., Adler, P., Kelly, J., Manwar, Ali (1995), Qualitative inquiry, An underutilized strategy in AIDS research in W. Pequegnat and E. Stover (Eds.) How To Write a Successful Research Grant Application (pp.97-113). New York and London: Plenum Press

Peterson, J. L., Coates, T. J., Catania, J. A., Middleton, L., Hilliard, B., & Hearst, N. (1992). High-risk sexual behavior and condom use among gay and bisexual African-American men. American Journal of Public Health, 82 (11), 1490-1494.

Quirk, M. E., Godkin, M. A., & Schwenzfeier, E. (1993). Evaluation of two AIDS prevention interventions for inner-city adolescent and young adult women. American Journal of Preventive Medicine, 9 (1), 21-26.

Ramirez, J., Suarez, E., de la Rosa, G., Castro, M. A., & Zimmerman, M. A. (1994). AIDS knowledge and sexual behavior among Mexican gay and bisexual men. AIDS Education and Prevention, 6 (2), 163-174.

Rotherman-Borus, M. J., Kooperman, C., Haignere, C., & Davies, M. (1991). Reducing HIV sexual risk behaviors among runaway adolescents. JAMA, 266 (9), 1237-1241.

Rotherman-Borus, M. J., Reid, H., & Rosario, M. (1994). Factors mediating changes in sexual HIV risk behaviors among gay and bisexual male adolescents. American Journal of Public Health, 84 (12), 1938-1946.

Schilling, R.F., El-Bassel, N., Serrano, N., & Wallace, B. (1992). AIDS prevention strategies for Latino and African American substance users. Journal of Psychology of Addictive Disorders, 6, 81-90.

Schilling, R.F., El-Bassel, N., Hadden, B., & Gilbert, L. (1995). Skills-training groups to reduce HIV transmission and drug use among methadone patients. Social Work, 40 (1), 91-101.

Schilling, R.F., El-Bassel, N., Schinke, Y., & Wallace, B. (1992). Building skills of recovering women drug users to reduce heterosexual AIDS transmission. Public Health Reports, 106, 297-304.

Sellers, D. E., McGraw, S., McKinlay, J. B. (1994). Does the promotion and distribution of condoms increase teen sexual activity? Evidence from an HIV prevention program for Latino youth. American Journal of Public Health, 84 (12), 1952-1958.

Slap, G. B., Plotkin, L. S., Khalid, N., Michelman, D. F., & Forke, C. M. (1991). A human immunodeficiency virus peer education program for adolescent females. Journal of Adolescent Health, 12, 434-442.

Solomon, M. Z., & DeJong, W. (1989). Preventing AIDS and other STDs through condom promotion: A patient education intervention. American Journal of Public Health, 79 (4), 453-458.

Sorenson, J. L., London, J., Heitzman, C., Gibson, D. R., Morales, E. S., Dumontet, R., & Acree, M. (1994). Psycho educational group approach: HIV risk reduction in drug users. AIDS Education

and Prevention. 6 (2), 95-112.

Stall, R., Eskstrand, M., Pollack, L., McKusick, L., & Coates, T. J. (1990). Relapse from safer sex: The next challenge for AIDS prevention efforts. Journal of Acquired Immune Deficiency Syndromes, 3 (12), 1181-1187.

Stephens, R. C., Feucht, T. E., & Roman, S. W. (1991). Effects of an intervention program on AIDS-related drug and needle behavior among intravenous drug users. American Journal of Public Health. 81 (5), 568-571.

Sufin, M., Friedman, S. R., Curtis, R., Neaigus, A., & Stepherson, B. (1991). Organizing as a new approach to AIDS risk reduction for intravenous drug users. Journal of Addictive Diseases. 10 (4), 89-98.

Valdiserri, R. O., Lyter, D., Leviton, L. C., Callahan, C. M., Kingsley, L. A., and Rinaldo, C. R. (1988). Variables influencing condoms use in a cohort of gay and bisexual men. American Journal of Public Health. 78 (7), 801-805.

Valdiserri, R. O., Lyter, D. W., Leviton, L. C., Callahan, C. M., Kingsley, L. A., & Rinaldo, C. R. (1989). AIDS prevention in homosexual and bisexual men: results of a randomized trial evaluating two risk reduction interventions. AIDS, 2, 21-26.

Valdiserri, R.O. How Aids has shaped CDC's prevention policies. New Jersey Medicine, 88 (12):914-6, 1991 Dec.

van Ameijden, E. J., van den Hoek, A. R., van Haastrecht, & Coutinho, R. A. (1994). Trends in sexual behavior and the incidence of sexually transmitted diseases and HIV among drug-using prostitutes, Amsterdam 1986-1992. AIDS, 8, 213-221.

Wallerstein, N. (1992). Powerlessness, empowerment and health: Implications for health promotion programs. American Journal of Health Promotion, 6 (3), 197-205

Walter, H. J., & Vaughn, R. D. (1993). AIDS risk reduction among a multiethnic sample of urban high school students. JAMA, 270 (6), 725-730.

Watters, J. K. (1994). Trends in risk behavior and HIV seroprevalence in heterosexual injection drug users in San Francisco, 1986-1992. Journal of Acquired Immune Deficiency Syndrome. 7, 1276-1281.

Watters, J. K., Downing, M., Case, P., Lorvick, J., Cheng, Y., & Fergusson, B. (1990). AIDS prevention for intravenous drug users in the community: street-based education and risk behavior. American Journal of Community Psychology. 18 (4), 587-596.

Weibel, W., Jimenez, A., Johnson, W., et. al.: Positive effect on HIV seroconversion of street outreach intervention with IDU In Chicago: 1988-1992. IX International Conference on AIDS/IV

STD World Congress, Berlin, June 1993 (abstract WSC152).

Weiss, S. H., Weston, C. B., Quirinale, J. (1993). Safe sex? Misconceptions, gender differences and barriers among injection drug users: a focus group approach. AIDS Education & Prevention, 5 (4), 279-293.

Wenger, N. S., Sinn, L. S., Epstein, M., & Shapiro, M. F. (1991). Reduction of high-risk sexual behavior among heterosexuals undergoing HIV antibody testing: A randomized clinical trial. American Journal of Public Health, 81 (12), 1580-1585.

Winett, R. A., Anderson, E. S., Moore, J. F., Sikkema, K. J., Hook, R., Webster, D. A., Taylor, C. D., Dalton, J. E., Ollendick, T. H., & Eisler, R. M. (1992). Family/media approach to HIV prevention: results with a home-based, parent-teen video program. Health Psychology, 11 (3), 203-206.

Yancovitz, S.R., Des Jarlais, D.C., Peyser, N.P., Drew, E., Friedman, P., Trigg, H.L., Robinson, J.W. A randomized trial of an interim methadone maintenance clinic. American Journal of Public Health 81 (9): 1185-91, 1991 Sep.

Zenilman, J. M., Erickson, B., Fox, R., Reichar C. A., Hook, E. W. (1992). Effect of HIV posttest counseling on STD incidence. JAMA, 267 (6), 843-845.



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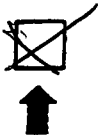
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