Looking Ahead: HIV Risk Reduction

Jeffrey A. Kelly, PhD

Research evaluating the impact of AIDS prevention strategies is still in its early stages, but increasing evidence does support some conclusions about these approaches. For example, the most effective behavior change programs do share common elements, and innovative prevention programs using these elements can be implemented. It is also clear from current data that educators must refine prevention methods to better reach individuals who have had difficulty implementing or maintaining change.

The initial focus of most community-level AIDS prevention campaigns has been education, and, with the possible exception of some inner-city populations, basic knowledge about HIV transmission and risk reduction has increased throughout the United States. Yet research indicates that knowledge about risk, while necessary, is often insufficient to produce a change in behavior, especially if patterns are long-standing, immediately and highly reinforced, related to interactions with others, and carry a distant or uncertain health threat. Because these characteristics typify the behaviors that transmit HIV, educators have adopted the following strategies: to redefine social norms to devalue risky behavior; to alter the manner in which personal vulnerability and risk are appraised; and to teach people skills that will assist them to better implement behavior changes.

Redefining Social Norms to Promote Behavior Change

Whether or not an individual changes behavior as a result of risk reduction recommendations is likely to be determined by the social consequences of that behavior. Efforts to reduce high-risk behaviors, such as unprotected anal intercourse or needle sharing, will be most successful if those behaviors are associated with social or peer group disapproval. Similarly, people will most likely adopt precautionary measures, such as using condoms during sex or cleaning syringes before sharing them, if peers encourage these measures. Several recent studies indicate that, among gay men, perceptions about the sexual precautions friends have adopted and about the social consequences of insisting upon safer sex practices strongly predict the behavioral risks individuals take.

Recognizing the importance of social acceptance in determining compliance to behavior change recommendations, a number of prevention models engage peers to serve as behavior change “endorsers.” The Stop AIDS Project model, developed in San Francisco and expanded to other cities, employs trained peer volunteers to meet with small groups of gay men in their homes and other non-professional settings for risk-reduction education sessions. In a similar fashion, successful prevention efforts aimed at intravenous (I.V.) drug users and prostitutes have relied on street counseling by credible models, themselves often drug users or sex industry workers, whose endorsements serve to legitimize and sanction behavior change.

An especially promising strategy for behavioral norm redefinition involves identifying natural “opinion leaders” within a population and engaging these leaders in activities that endorse risk reduction. Social psychology literature has established that innovations within a population are often exhibited initially by a relatively small set of these opinion leaders and are then diffused throughout the population. As this occurs, new norms evolve and become established. While direct tests of this theory’s applicability to HIV risk reduction are uncommon, it is clear that strategies that establish precaution-taking as an acceptable and expected norm foster behavior change.

Personal Vulnerability and Risk Appraisal

Populations whose behavior has changed most dramatically in response to AIDS—gay men in San Francisco and New York City and I.V. drug users in New York City and New Jersey—are those who were hit hardest and earliest by the disease. Moving further in distance from the geographical centers of the epidemic and into areas where populations have not yet been as directly affected by AIDS, there is less consistent evidence of behavior change. It appears that a community must witness the effects of HIV-related illness before individuals in that community respond by changing behavior. This is a problem because, by the time cases of serious HIV-related symptoms or AIDS become common in a community, it is likely that HIV has already been transmitted among many in that population. To avoid this situation, a key element of effective prevention programs has been to assist people in accurately appraising personal vulnerability and risk potential.

As Karolyn Siegel has noted, effective educational messages explicitly identify high-risk practices and safer alternatives, avoid ambiguous phrasing, encourage and suggest methods for behavior change implementation, stress the benefits of change in relation to the risks of not changing, and use language appropriate to the intended population. Educators have incorporated these characteristics into both face-to-face and mass media prevention campaigns. They have tailored messages to specific risk populations, framed information so that it is sensitive to culturally-defined values and lifestyle issues, encouraged individuals to assume informed and active decision-making roles with respect to their behavior, and explicitly associated various practices with the degree of risk they involve.

Several studies indicate that while gay men who avoid risky behavior correctly perceive themselves as protected from contracting HIV, men who engage in dangerous practices underestimate their own level of vulnerability to the virus. Although it is difficult to identify the most appropriate methods to foster reasonable levels of fear about transmission, educators must induce realistic levels of perceived vulnerability among people insufficiently sensitized to this risk. It is important to link this perceived threat to personal behavior practices, and, further, to link the reduction of risk to an alteration of those specific practices. Experience in other health behavior areas, however, indicates that intense fear can inhibit behavior change if it triggers denial, inattention to messages, fatalism, or hysteria. To avoid this, credible sources should deliver accurate messages that include infor-

continued on page 2
Risk Reduction...continued from cover

mation about assessing individual vulnerability and the benefits of behavior change.

Skills Acquisition

The risk of HIV transmission is mitigated by several factors, including: the degree to which sexual or needle-sharing partners communicate, the setting in which high-risk behavior occurs, the mood states or intoxicated use of partners, the feelings between partners, the existence of beliefs that reinforce risky or safer behavior, and environmental conditions, such as availability of condoms, that facilitate or hinder risk reduction efforts. To the extent that these situational "triggers" are associated with high-risk behavior, individuals can be taught to acquire and use new skills to implement behavior changes and to more safely handle situations that have led in the past to risky behavior.²

Among the skills that are taught in effective AIDS prevention programs are: how to use condoms, rather than simply recommending condom use; how to correctly clean syringes, rather than simply recommending safer sex. Several programs have established the benefits of directly teaching individuals, often in group sessions, sexual assertiveness skills for resisting pressures to engage in high-risk practices, skills for identifying and modifying personal behavior patterns that increase susceptibility to high-risk behavior, and methods for generating patterns of thinking to guide and reinforce the implementation of behavioral changes.³ Regardless of the specific skills training method used, it is clear that many people can benefit from assistance in refining the abilities they need to translate their AIDS risk awareness and "good intentions" into actual behavior change.

Prevention Challenges

While, in general, the gay community has responded well to behavior change strategies, not all gay men have successfully maintained these changes. In addition, other groups, particularly women of color, pose prevention challenges to educators.

Gay men in large cities have made substantial behavior changes in response to the HIV epidemic. These changes, however, have not been adopted uniformly within this population. Between 10 percent and 35 percent of gay men surveyed in various AIDS cohort samples reverted at least occasionally to unsafe sex following initial successful behavior change. While relapse in this area has not been well-studied, it appears to be correlated to younger age, lower education level, and, especially, frequency and degree of gratification from high-risk behavior with multiple partners in the past. Relapse also appears to be related to situational factors such as meeting "someone special," falling in love, using intoxicants, and experiencing emotional difficulties.

Relapse is a predictable, well-recognized problem in other health behavior areas such as smoking, substance use, and cardiovascular risk, and its appearance in an area where risk is related to sexual and drug-use behavior is not surprising. In contrast to most other health risk behaviors, however, even occasional unsafe sex relapse carries grave risks, since HIV is so prevalent among gay men and is so efficiently transmitted during unprotected anal intercourse. There is now little "margin for error" in risk reduction among non-monogamous gay men who remain sexually active.

It is crucial that prevention strategies be refined to better address the problem of relapse. Research on other health issues, such as smoking, suggests that it is valuable to teach people to anticipate future relapse temptations, to plan alternative cognitive and behavioral strategies to handle situations that create relapse vulnerability, and to make social and environmental changes that consistently support risk reduction maintenance. In addition, this experience indicates that, because individuals vary in their ability to sustain behavior changes, they require different levels of ongoing intervention assistance.

Comprehensive AIDS prevention models are needed to combine ongoing community-level mass efforts, which may be sufficient to help many individuals sustain change, with more intensive and personalized types of intervention, which, although less cost-efficient, may be necessary to help some individuals maintain change. Several programs are now attempting to address the latter need using such diverse approaches as risk reduction maintenance groups offered in health clinics, gay bars, and drug treatment centers; peer counseling; and even toll-free anonymous telephone counseling services for those who have difficulty maintaining behavior changes. Programs like these, however, must go beyond one-time interventions. In the same way Alcoholics Anonymous has responded to the continuing attraction of alcohol, these programs must create ongoing support for people prone to unsafe sex, using, for example, a buddy system to help people avoid relapse.

Changes in the epidemiology of HIV, urban and minority women constitute a group increasingly at risk. Very little is known, however, about how educators can refine the prevention models successful in the gay community to change the behavior of people who are poor, disempowered and confront by many "survival" stressors other than AIDS. In addition, the situation is complicated because these women may be placed at risk by people who are not only their sexual partners but also the primary providers of their economic, familial, and social support. Just as prevention models for urban gay men have been based on the cultural contexts of their lives, educators must develop innovative models that are rooted in the culture, values, and social systems of the urban, heterosexual poor.

Conclusion

The 1980s were years of prevention model development. While educators have been successful in establishing the health risks of HIV infection and in achieving remarkable behavioral changes within certain of the groups at highest risk, much remains to be done. The 1990s promise to be a decade in which it will be necessary to refine and tailor prevention models to address the challenges created by the evolving epidemic. Among these challenges are: developing and field-testing promising intervention approaches at a community level; addressing the problem of long-term behavior change maintenance; and better reaching minority and urban populations with culturally-relevant interventions.

Jeffrey A. Kelly, PhD is Professor of Psychiatry (Psychology) and Chief of the Division of Psychology at the University of Mississippi Medical Center.

References


Request for Submissions and Comments

We invite readers to send letters responding to articles published in FOCUS or dealing with current AIDS research and counseling issues. We also encourage readers to submit article proposals, including a summary of the idea and a detailed outline of the article. Send correspondence to:

Editor, FOCUS: A Guide to AIDS Research and Counseling
UCSF AIDS Health Project, Box 0884
San Francisco, CA 94143-0884
Psychoneuroimmunology and HIV Infection

Robert M. Kertzner, MD

Psychoneuroimmunology, the study of the reciprocal effects of the mind and psychosocial factors, the brain and the central nervous system, and the body and the immune system, is now being applied to HIV infection in the hopes of enhancing health and prolonging survival. Although the psychoneuroimmunology of HIV remains more speculative than scientific, preliminary research suggests its potential use. This article will review the conceptual basis of psychoneuroimmunology, its relevance to HIV infection, and its implications for working with seropositive people.

Links among life events, stress, and physical health—long suspected by clinicians and clients alike—have been studied increasingly over the past 25 years. Since George Solomon coined the term “psychoimmunology,” scientists and clinicians have attempted to support the theory of psychological influences on immunity using several lines of research. A successfully integrated theory must explain how stressful events affect the central nervous system (CNS), how the CNS communicates with the immune system, and how these communications influence health.

Psychoneuroimmunology Research

Biological psychiatry has demonstrated that states of depression and anxiety are associated with a variety of biological alterations, such as changes in levels of neurotransmitters—chemicals that transmit impulses between nerves—and hormones. For example, during major depressive episodes, researchers have found increased levels of cortisol, an adrenal hormone that can be immunosuppressive under some circumstances. Studies have also related stress to increased levels of epinephrine, a neurotransmitter that can be associated with decreased immune function.

Two other findings provide additional evidence for links between psychological states, the central nervous system, and the immune system. Neuroanatomical studies have found that there are nerves in lymph tissue—for example, the spleen, the thymus and the lymph nodes. Furthermore, researchers have identified, on lymphocytes, receptors for a variety of substances including neurotransmitters, neuromodulators, hormones, and opioids.

While many studies have identified connections among stress, immune changes, and health outcomes, few have connected all three. In one line of research, populations of stressed but otherwise healthy individuals, for example, students or recently separated couples, have had stress-related changes in immune measures, such as a decreased percentage of CD4 lymphocytes. A second line of inquiry has looked at psychosocial factors, for example, emotional states and coping styles, as possible predictors of health outcomes, such as cancer occurrence or survival. These studies have had conflicting results, reflecting the differences in the types of cancer and emotional states examined.

HIV Infection

Despite the demands science makes on a psychoneuroimmunological model, HIV infection seems, at first, to fit the theory well, since it causes both immunological dysfunction and serious psychological conflicts, and since practitioners have been able to offer a variety of mental health interventions to improve living with HIV. The connection of the physiological and the emotional suggests that psychoneuroimmunology might help to explain the natural history of HIV and to develop possible treatments.

Recent studies of HIV infection have attempted to correlate coping styles, stress levels, health outcome, and immune status, although none to date have established connections among all of these measures. Temoshok studied personal attributes of people with AIDS and ARC and found that a greater sense of personal control and higher levels of “anger-hostility” were associated with increased survival after diagnosis. As acknowledged by Temoshok, the small size of her sample and the subjects’ advanced illness warrants cautious interpretation of these findings. In addition, in cases of advanced HIV disease, it is difficult to tease apart the immunological effects apparently caused by psychosocial factors from those caused by HIV infection itself.

To control for this uncertainty, several ongoing psychoneuroimmunology studies are looking at asymptomatic and mildly symptomatic subjects. Yet these studies raise more questions than they answer. Barnes recently reported the unexpected finding that greater levels of distress in mildly symptomatic, seropositive, gay males were positively associated with measures of enhanced immune function. In seeming contradiction, studies of interventions, such as relaxation techniques, assertiveness training, and aerobic conditioning, have found that these stress-relieving activities benefit the immune functioning of seropositive subjects.

Methodological and Conceptual Problems

Before attempting to reconcile these and other findings, basic methodological and conceptual problems must be considered. Several factors compete with psychosocial influences and may better explain immunological and health outcomes: the possibility of other biological co-factors, the effects of concurrent medical treatments, and physical factors that might influence psychological states, such as sleep deprivation, cigarette smoking, alcohol or drug consumption, or changes in appetite and nutritional status.

Bilateral psychoneuroimmunology has demonstrated that depression and anxiety are associated with biological alterations, such as changes in levels of neurotransmitters and hormones.

Stress itself probably has varied effects on the immune system. First, different levels and kinds of stress may be associated with varying immunological alterations. Second, stress may have differing effects depending upon the stage of HIV infection. Finally, little is known about the temporal relationship between stress, immunological effects, and health outcome; a critical intensity or duration of stress may be necessary before there are clinically significant alterations in the immune system.

While these qualifications limit the present usefulness of applied psychoneuroimmunology, mental health interventions, immunopotent or not, have great value in improving the quality of life. As treatment advances enable clinicians to treat HIV infection as a manageable chronic disease, psychoneuroimmunologically-based interventions may become part of the standard of care. For example, such interventions may be used as “immunomodulators” to augment the effects of antiviral drugs. In the meantime, practitioners and clients should avoid premature conclusions on this topic; science is a long way from defining for HIV infection a single emotional response that is necessary to maintain health.

Robert M. Kertzner, MD is Assistant Clinical Professor of Psychiatry at Columbia University and co-investigator at the HIV Center for Clinical and Behavioral Studies.

References


The information reported here was supported in part by a grant from the National Institute of Mental Health (MH-43620).
Recent Reports


In a random telephone survey conducted in San Francisco in late 1989, 30 percent of gay and bisexual men reported engaging in unsafe sex in the month prior to the survey, and 18 percent of all men and 36 percent of those between 18 and 29 years old reported engaging in unprotected anal sex within the prior year. Among those practicing unsafe sex were many who had vowed to avoid unsafe behaviors and who had broken this commitment.

Eighty-five percent of the survey’s 401 subjects said they had made such a commitment; 16 percent of those who had made the commitment failed to keep it and had “relapsed” into unprotected anal sex sometime in the previous year. The rate of relapse, and also participation in unsafe sex, was highest among younger subjects, relative newcomers to the city, and those in primary gay relationships. The survey defined unsafe sex as unprotected anal sex, oral-anal contact, fisting, or oral sex with ejaculation. The mean age of all subjects was 39 years old; 83 percent were White. In most cases, the number of subjects of color was too small to lead to statistically significant conclusions about this subpopulation.

Two earlier surveys posed similar questions of a similar population. The number of individuals reporting that they had engaged in unsafe sex in the previous month was statistically unchanged from a 25 percent rate in a 1987 survey, but was significantly lower than in 1984, when 59 percent of subjects reported engaging in unsafe sex in the previous month. Unprotected anal sex declined dramatically from 1987, but oral sex with ejaculation and oral-anal contact increased significantly.


Rates of high-risk sexual behavior among gay men in small cities appear to be higher than in large U.S. cities, according to a survey of 355 gay men at gay bars in three Southern cities. Twenty-three percent of respondents reported engaging in receptive unprotected anal sex within the previous two months, and 25 percent reported engaging in insertive unprotected anal sex. In addition, many subjects (29 percent receptive and 35 percent insertive) reported engaging in unprotected oral sex with ejaculation during the two months prior to the survey.

Researchers surveyed men entering four bars in Monroe, Louisiana, and in Hattiesburg and Biloxi, Mississippi, and got responses from a mean of 77 percent of those who received the written surveys. Subjects, 91 percent of whom were White, had a mean age of 28.3 years, and an educational level of 14.6 years. Eighty-three percent reported being sexually active over the previous two months, and 48 percent had multiple sexual partners.

Overall, subjects showed high levels of knowledge about risk behavior, but relatively low levels of social support for risk-reduction practices. Men who perceived less social support for reducing risk were more likely to practice unprotected receptive anal intercourse than those who perceived greater support.


AZT is effective in slowing disease progression and improving the immune status of asymptomatic seropositive individuals with CD4+ cell (T-helper cell) counts of less than 500 without producing serious side effects, according to results from Protocol 019 of the AIDS Clinical Trials Group. In addition, the study of 1,338 predominantly gay or bisexual White male subjects with CD4+ cell counts greater than 200 and no symptoms of HIV disease showed that the drug may be effective in doses lower than the earlier FDA recommendation of 1,500 milligrams per day.

After a mean of 55 weeks of treatment, there were 33 cases of AIDS in a placebo group of 428 subjects (a rate of 6.6), compared to 11 cases among the 453 subjects (a rate of 2.3) receiving a daily dose of 500 milligrams, and 14 cases among the 457 (a rate of 3.1) individuals receiving a daily dose of 1,500 milligrams. (Rates are diagnoses per 100 person-years of observation.)

Members of the groups receiving AZT increased their CD4+ cell levels over the study period, while members of the placebo group showed a decline in CD4+ cell levels. Subjects receiving AZT showed significant decrease in levels of p24 antigen, compared to individuals in the placebo group, whose p24 antigen levels increased. Researchers said that clinical benefit was most easily demonstrated in subjects who entered the study with CD4+ cell counts between 200 and 499.

Nausea was the only significant side effect reported in patients receiving a daily dose of 500 milligrams. At 1,500 milligrams, some subjects showed significant bone marrow toxicity.

At a recent public address in San Francisco, Paul A. Volberding, MD, the principal author of the study, said that the proven effectiveness and safety of AZT means that any physician can use the drug to provide care for HIV-infected patients. The March 23, 1990 Journal of the American Medical Association includes a report on the NIAID State-of-the-Art Conference on AZT that refers to data from ACTG Protocols 019 and 016. The Lancet (April 23, 1990) includes an editorial response to the ACTG Protocol 019 data, and the Annals of Internal Medicine (May 15, 1990) includes a report on ACTG Protocol 016 and the effects of AZT on mildly symptomatic subjects.

Next Month

Despite the fact that the modes of HIV transmission were described early in the epidemic and remain fundamentally unchanged today, periodic reports citing variations have lead to misinformation and confusion. In the June issue of FOCUS, Alan Lifson, MD, MPH, Chief of the Research Branch of the San Francisco Department of Public Health AIDS Office, reviews the research literature regarding transmission and seeks to clarify some of the confusion. He covers anal and vaginal intercourse, oral sex, blood-borne transmission, perinatal transmission, and casual contact.

Safe sex guidelines were originally developed in 1983 to define standards by which people could protect themselves from sexual transmission of HIV. Also in the June issue, Neil R. Schram, MD, Chair of the AIDS Task Force of the American Association of Physicians for Human Rights, the group that first developed the guidelines, reassesses them.

FOCUS A GUIDE TO AIDS RESEARCH AND COUNSELING

MAY 1990. A monthly publication of the AIDS Health Project, which is affiliated with the University of California San Francisco and the San Francisco Department of Public Health. Published in part with an equipment grant from Apple Computer Inc., Community Affairs Department. ©1990 UC Regents. All rights reserved.

Executive Editor and Director, AIDS Health Project: James W. Dilley, MD; Editor: Robert Marks; Staff Writer: John Tighe; Founding Editor and Advisor: Michael Helquist; Medical Advisor: Stephen Follansbee, MD; Marketing: Paul Causey; Production: Joseph Wilson, Larry Cichosz and Stephan Peura; Circulation: Sandra Kriletich.

SUBSCRIPTIONS: 12 monthly issues of FOCUS are $36 for U.S. residents, $24 for those with limited income, $48 for individuals in other countries, $90 for U.S. institutions, and $110 for institutions in other countries. Make checks payable to "U.C. Regents"; address subscription requests and correspondence to FOCUS, UCSF AIDS Health Project, Box 0884, San Francisco, CA 94143-0884. Back issues are $3 per issue. For a description, write to the above address or call (415) 476-6430.

MOVING? To ensure uninterrupted delivery of FOCUS, send your new address four weeks before the change becomes effective. ISSN 1047-0719