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The Role of Education in AIDS Prevention

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The severity of the current AIDS epidemic, combined with the lack of successful biological interventions, necessitates an active educational program as the primary intervention strategy. Health education theories abound, but relatively little definitive application of these theories has been made to the issues involved with HIV transmission: sexual behavior and the sharing of intravenous drug apparatus. Significant behavior changes have occurred in some people, but the consistency of the behavior change may be difficult to sustain. Thus, the authors suggest that health education should be delivered repeatedly in culturally acceptable language and format, by community leaders, and through many different approaches (churches, schools, media, and so on). Finally, because of the limited definitive evidence regarding these approaches with respect to AIDS, considerable resources should be provided to evaluate these strategies and to revise programs on the basis of the evaluations.

The acquired immunodeficiency syndrome (AIDS) has exploded in New England just as it has throughout the nation and the world. This generation of citizens is witnessing an epidemic of frightening proportions, with more than fifty thousand U.S. cases reported between June 4, 1981, and January 4, 1988, and a mortality rate of over 50 percent in AIDS patients. In addition to the morbidity and mortality, there has been unprecedented hysteria and fear of contagion, leading to isolation of persons with AIDS and their friends and families. Finally, since most of those afflicted are either minorities, homosexual men, or illicit intravenous drug users (IVDUs), or a combination of these, a social isolation has often resulted as well. This is somewhat reminiscent of what occurred in response to recognition of the epidemic of sexually transmitted diseases (STDs) at about the turn of the century.¹

Despite the sudden emergence of the illness and its dreadful consequences, knowledge

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about the problem has accumulated very rapidly. The basic epidemiology was conveyed by 1985 with descriptions of high-risk groups;² the human immunodeficiency virus (HIV) was identified by 1984;³ a moderately specific and sensitive antibody test was developed in the same year;⁴ the genetic structure of the virus(es) was identified by 1985;⁵ and in 1987, prototype vaccines were developed and Phase I testing was begun.⁶

However, it is not likely that a vaccine will be available for several years. First, the virus changes its structure frequently, thus complicating the task of vaccine production and testing. Second, protective antibodies have not been conclusively established. Third, the efficacy of a vaccine may be difficult to establish, since the incubation period of the disease appears to be lengthy. Similarly, safety may be hard to prove, since the genetic material may have long-term oncogenic (cancer-producing) properties. Finally, difficult practical and ethical problems will undoubtedly arise in testing candidate vaccines.

A second potential preventive strategy could be the use of drugs either to block infections (for example, amantadine for influenza A) or to stop the progression of the infection from the asymptomatic stage to illness. Despite intensive efforts, the prospect for such drugs is not considered good. To this point, drugs are available which seem to slow the progression of the illness, but drugs for prevention do not seem to be within view.

Because of the difficulty in developing preventive biological approaches with vaccines and drugs, considerable emphasis has been placed on the other obvious focus for the prevention of HIV infection; that is, education about the agent and methods for lessening or eliminating the possibility of transmission.

Early in the epidemic, homosexual community groups responded to information about the virus by adopting and recommending sexual practices that would reduce its transmission. Specifically, organizations in San Francisco, Los Angeles, New York, and Boston provided information on "safer sex" practices.^{7, 8, 9} More recently, and perhaps facing greater resistance, those involved with intravenous (IV) drug users and the subject of AIDS have been providing information on the safer use of needles by drug users; that is, practices that may restrict the spread of HIV in this high-risk group.

What are the prospects for success in the effort to reduce the spread of infection through health education? This question and the public policy issues that are related to it are the focus of this article.

Health Education Theory

In general, health education has achieved considerable visibility during the last two or three decades. At least in part, its growing popularity is due to the recognition that many serious and prevalent illnesses (for example, lung cancer, heart disease, injuries) are either caused by or related to negative lifestyle behaviors (cigarette smoking, overeating or inadequate nutrition, lack of exercise, and drug use, primarily).

The initial efforts of the health professions to educate individuals at risk usually involved a combination of information about the risk behaviors and prescriptions for behavior changes. Not surprisingly, individuals did not often respond positively to these initiatives.^{10, 11, 12} In fact, compliance with behavior-change prescriptions was less than with drug prescriptions. Many individuals involved with the risk behaviors do not even enter the health care system until the behaviors are very well established or the disease is already present.

As physicians and nurses were becoming increasingly aware of their ineffectiveness as

health educators, social scientists were developing cogent theories to guide us in the development of potentially more effective health education strategies. Many of these theories could serve as the basis for our education strategies in the battle to prevent AIDS.

The Health Belief Model is one such theory. It is based on six variables that are assumed to predict behavior: (1) perceived susceptibility to a health threat; (2) perceived severity of the consequences of the threat; (3) the individual's evaluation of the efficacy of possible behavior change; (4) the perceived costs of possible actions; (5) the presence or absence of cues to action, such as symptoms or mass media communications; and (6) demographic, structural, and social-psychological factors that act as "enabling" factors.¹³ In general, research supports the validity of this approach, but the approach assumes a rational basis for behavior. Unfortunately, sexual activity and drug use, the two areas of behavior that pose the greatest risk of transmitting HIV, are often spontaneous acts that may not be under rational control.¹⁴ Moreover, fear, as it relates to becoming infected with or passing on the virus, may also affect otherwise rational behavior. For example, the fear of illness in HIV-positive individuals may lead to depression and increased sexual contacts rather than to "safer sex." Also, some reports indicate that seropositive and even ill individuals may continue to engage in unsafe, multiple contacts as a method of retribution aimed at those who infected them.

A second theory is the Fear Drive Model.¹⁵ This has been less well studied but suggests that fear creates feelings of dysphoria which most people would choose to relieve by reducing the fear. Thus, the fear component has been conceptualized as the crucial motivating factor. As with the Health Belief Model, though, the changes that are induced tend to be small, and the usefulness of this approach in AIDS prevention is unclear. In dealing with AIDS, however, we must recognize that a great deal of fear is often present and that it must be considered in the development of health education strategies; otherwise, the educational messages will not be heard.

Howard Leventhal has noted that if a threat is overpowering, it may lead to a breakdown in a person's self-esteem, thereby reducing the person's ability to cope. He adds, "The level of fear stimulated by the information at the time of exposure seems to be irrelevant," he says, "but exposure to information about threat can lead to action if accompanied by behavioral planning."¹⁶ The mere provision of information is not enough, Leventhal concludes; steps must be offered to empower people to change behavior.

The Dual Process Model, developed by Leventhal and his colleagues, suggests that people react both cognitively and emotionally to health messages that arouse fear. Individuals first attempt to evaluate the particular threat, then select and rehearse specific steps to avoid the threat. Empirical data are not available to judge the potential impact of this model on the spontaneous behaviors of drug use and sex.

A fourth approach, Social Learning Theory, would seem to serve as a potentially important framework for health education about AIDS.^{17, 18} Albert Bandura stresses the importance of the reciprocal relationship between behavior and the environment; in everyday life, behaviors alter environmental conditions and are in turn altered by the very conditions they create. However, the environmental information has to be presented in a way that is understandable to the individual and that fits within that person's life experiences. This means that health education information has to be delivered in a culturally acceptable and understandable format and by a person with whom the individual can identify. Social Learning Theory has served as the basis for the successful health education approaches of cardiovascular disease prevention, but its applicability to AIDS prevention is untested.

Health Education in AIDS

The advent of the acquired immunodeficiency syndrome and the current limits of biological approaches lead us to reexamine health education theory and its applicability to the problem of AIDS. Although there have been anecdotal claims of success, few studies exist which definitively demonstrate the effectiveness of educational interventions in reducing or eliminating the spread of HIV. This lack of evidence stems partly from the overall milieu of fear in which educational programs exist — a fear that may be altering behaviors both positively and negatively. Overall, there would seem to be risk-reduction attempts both in sexual behavior and in the sharing of apparatus among intravenous drug users.¹⁹

The first group to have been affected is comprised of homosexual and bisexual men. This group still represents the largest number of cases. This group was also the earliest to develop health education messages and suggestions for effective behavior-change strategies. The threat of AIDS and the information disseminated about the spread of the virus have resulted in significant behavior changes in nearly all aspects of sexual behavior among many members of this community.

In a study conducted in New York City in 1985, homosexual males reported a 48 percent decline in kissing; a 60 percent decline in passive and active oral-genital sex; a 98 percent decline in swallowing a partner's semen; and a 75 percent decline in passive and active anal intercourse.²⁰ Fifty-one percent of those interviewed reported that they no longer engaged in receptive rectal ejaculation. Studies in San Francisco report similar declines.²¹ Support for these self-reported behavior changes comes from epidemiological reports of declining rates of gonorrhea of the rectum and throat.²²

Unfortunately, it is unclear whether these behavior changes are due to the more-structured health education programs or to the marked increase in fear generated by the media and by word-of-mouth information.

In research at a Denver clinic for sexually transmitted diseases, behavior change reported by homosexual males was statistically greater than that reported by heterosexual males. It would appear that successful change of behavior is in part due to the change in cultural definition of what is "appropriate" or acceptable behavior among gay men in the age of AIDS.²³ In the epicenter cities of AIDS, the homosexual communities have been successful in redefining intimacy, and this message has been consistent in all prevention programs. For example: Alterations of acceptable behavior in bathhouses and gay bars has occurred because of pressure from the gay community as well as legal action in some cases. Reports from Ansell Marketing, Inc., one of the largest condom manufacturers in the United States, indicates that sales have increased 10 percent yearly in each of the past two years.²⁴ This may be a reflection of behavior change among gay men, although specific data to support this hypothesis are not available. Illicit intravenous drug users comprise the second largest group to have been affected by AIDS. Fear may not be effective as a motivational strategy for behavior change with members of the IVDU group, whose fatalistic acceptance of the risk of death is seemingly an accepted part of their lifestyle. Yet reports indicate that IVDU are learning about AIDS and adjusting their habits to reduce transmission of the virus.

In a 1984 study conducted with fifty-nine IVDU in New York City, 93 percent of the respondents knew that intravenous drug users were at risk for AIDS.²⁵ In a similar study conducted by Peter A. Selwyn, in 1985, 97 percent of IVDU interviewed acknowledged needle sharing as a risk factor (N = 261).²⁶ Both studies reported behavioral changes. In

the first group, 59 percent reported behavioral change: 31 percent reported cleaning needles; 29 percent, a reduction in the sharing of works; and 51 percent, that their friends had also changed behavior. In Selwyn's group, 60 percent reported some behavior change regarding needle use; logistic regression analysis indicated that persistent needle sharing was associated with lower scores on an AIDS knowledge questionnaire. Forty-eight percent had decreased their number of sex partners or were using condoms. The population groups represented in these studies had been exposed to AIDS information and counseling in their methadone maintenance programs, either through outreach efforts or through the corrections systems. It must be noted, however, that these self-reports of behavior change do not adequately reflect or evaluate a final education/intervention program.

Health Education Policy

At this point in the AIDS epidemic, health education is the only viable alternative to preventing the spread of infection, given the unlikely prospect of effective vaccines or drugs, or both, in the near future. Unfortunately, the scientific basis for effective health education approaches is not as sound as we would like; its status probably reflects, at least in part, the heavy emphasis on research in the biological rather than the social sciences over the last many decades. Nevertheless, the evidence shows that the two highest risk groups in the United States, homosexual/bisexual men and intravenous drug users, can receive educational messages about AIDS and learn from them. Further, at least among homosexual men there has been a significant decrease in high-risk behaviors. A great deal remains to be done, however, and significant change among IVDUs has yet to be established.

Of primary importance to the authors is the development of an overall federal policy, with appropriate funding, to promote a systematic educational strategy that is both credible and feasible. In this regard, one strategy must not be selected at the expense of another. Evidence from other discussions (about heart disease, for example) suggests that multiple approaches work synergistically. At the same time, all approaches that are used need to be continuously evaluated and modified as new knowledge about AIDS is gained in the area of social science. Although an analogous process is used in acquiring biological information about AIDS, the approach is less well accepted with respect to the social science aspects of AIDS, and there may be fewer available and experienced scientists to do the research.

The need to provide appropriately explicit information that does not interfere with either individual or group cultural beliefs may present the most formidable difficulty in the implementation of an educational approach. Examples include concerns that education in the use of condoms fosters the continued practice of engaging in sex with multiple partners (either homosexual or heterosexual) and that teaching drug users to clean syringes and needles with bleach condones the practice of drug use. However, all health education theories and models recognize the importance of clear and unambiguous messages. In particular, Social Learning Theory would suggest that the messages need to be relevant to the environment in which a person lives. Further, the Dual Process Model suggests that behavior change is more likely when behaviors are understandable and can be rehearsed. This supports the idea that the mere provision and distribution of information are not adequate for changing behavior. If the information is provided within an environment (that is, social structure, culture) that is enhancing, behavior change may more likely follow. An effective education program needs to address the affective as well as cognitive

areas of learning. Additionally, these behaviors need to be augmented with other strategies for change. The experience of British troops in World War II serves as an example. When troops were given a message advising sexual abstinence, 20 percent of five thousand troops on leave in Paris became infected with syphilis. A second approach was more successful: some troops were issued condoms in addition to information, and subsequently only 3 percent of three hundred thousand troops visiting Paris became infected.²⁷ What we learn is that while educational strategies are of value, prevention programs that consist only of pleas for abstinence may not be as successful as programs that include counseling strategies to emphasize “safer” types of sexual contact. These strategies should be supported by access to the means of protection (for example, distribution of condoms or sterile needles and syringes, or both). For these and other reasons, the authors believe that specific federal policies should be developed and implemented at once.

Of equal importance to a national policy and message is the need to implement supplementary approaches at the state and local levels. This may be more difficult to do uniformly in a free and democratic society, where different states and localities have varying incentives and financial resources. However, our evaluation of the health education theories and research supports the notion that behavior change is more likely when individuals receive the same or similar messages from multiple sources. Thus, each locality should develop programs for educational messages about AIDS, to be delivered via the mass media, the schools, the churches, community agencies, health providers, and whatever other avenues and approaches are available to communities. The examples of the heart disease prevention programs would appear to be good and successful models. These programs have been based largely on Social Learning Theory, described earlier, and include health education material delivered in a culturally acceptable format, delivered through several channels (for example, church, school, media, doctors) and involving community leaders. However, we must recognize that these local programs should be commenced at once in order to have maximal opportunity for success. We must also understand that these programs will need to be modified with experience, and that they will be expensive. Federal guidance and support will be essential, but regional and state direction may be necessary if the federal direction continues to be unsatisfactory.

Conclusions

Relatively little definitive information is available regarding the effectiveness of health education in decreasing or eliminating HIV transmission. Nevertheless, since this is the only current available strategy, we must continue these preventive approaches, which are based on available theory and previous experience with other health problems. Also, these programs need to be formally evaluated in order to redirect prevention strategies in the future. Federal, state, and local policies and resources will need to be allocated with this in mind. 🍷

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