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Correlates of AIDS-Related Knowledge and Awareness Among Youth in Los Padrinos, California, Juvenile Hall

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A dissertation submitted to the
Graduate Faculty in Sociology in partial
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Abstract

Correlates of AIDS Related Knowledge and Awareness Among Youth in Los Padrinos, California, Juvenile Hall

by

Kathleen Gotthelf-Farrell

Adviser: Professor Charles Winick

Knowledge is shaped and conditioned by social factors; social and demographic factors impact an individual's integration of knowledge and its application. This study examines the social and demographic characteristics of individuals which are associated with the amount of accurate knowledge which they hold about how AIDS is contracted, its effect on the body, and which social, sexual and needle related behaviors explain statistically significant variation in the AIDS related knowledge and awareness of Black and Hispanic adolescents incarcerated in a California juvenile facility. Blacks and Hispanics exhibit a higher percentage of AIDS than their respective percentages of the U.S. population; an understanding of factors related to AIDS knowledge to develop programs aimed at decreasing AIDS related behaviors, particularly among

high risk adolescents, is essential. Data were collected from 230 male and female teen inmates in Los Angeles County using The National Health Interview Survey. Conclusions of the study identified a low general knowledge and awareness of transmission of the virus among this high risk population. Relationships between sexual and needle practices are related to knowledge and awareness, and females exhibit higher levels of AIDS knowledge. Significantly, adolescents who exhibited indicators of greater self esteem possessed more AIDS knowledge than peers, as did juveniles who had greater contact with their fathers. These findings suggest that knowledge is affected by social conditioning. Culturally sensitive education programs which build upon an awareness of social influences to which juveniles are exposed are necessary.

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Chapter I

Background and Purpose of the Study

Since 1981, when acquired immune deficiency syndrome, or AIDS, was first diagnosed in America, more than 250,000 cases of the deadly disease have been confirmed, and more than 100,000 people have died from AIDS. This is only a scant indication, however, of the extent of the spread of the HIV virus, ascribed as the cause of AIDS. It is currently estimated that between 1 million and 1.5 million Americans have been infected with the virus but have not yet developed clinical symptoms (World Health Organization, 1991; Academic American Encyclopedia, 1991).

Many of these individuals may contract AIDS themselves and all of them are believed by medical authorities to be capable of spreading the disease to others, especially through anal intercourse and sharing needles. While this "blood to blood" transmission thus makes AIDS the most prevalent among homosexuals and drug addicts, the disease also has been spread through heterosexual vaginal intercourse, has been contracted by patients having blood transfusions, and is transmitted through fetal blood exchange during pregnancy.

Following infection with HIV an individual may show no symptoms at all or may develop an acute but transient

mononucleosis-like illness. The period between initial infection and the development of AIDS can vary greatly, apparently from about 6 months to 11 years. Various estimates indicate that somewhere between 26 to 46 percent of infected individuals will go on to develop full-blown AIDS within a little more than 7 years following infection (Hurley, 1986).

Neuropsychiatric manifestations occur in about 60 percent of HIV-infected persons (Beckham and Ellen, 1986). It is now well established that HIV can exist and proliferate within the brain, spinal cord, and peripheral nerves. This results in a broad range of symptoms, including meningoencephalitis. Evidence thus far indicates that circulating HIV-inflected monocytes may be responsible for the initiation of infection in the brain, with little evidence to support direct infection of neuron tissue by HIV.

While some HIV-infected persons may appear healthy, growing evidence suggests that they experience subtle but important defects of immune function. Once a diagnosis of AIDS can clearly be made the clinical course generally follows a relentless decline, with death occurring within one to two years.

In order to try to slow the rate of increase of the AIDS virus, a public education campaign has been waged by government and other organizations through the mass

media. It is widely believed that knowledge of how AIDS is transmitted and its effects on the body will induce people to diminish or eliminate behaviors that increase the probability of their contracting AIDS.

Sociology and AIDS

According to the discipline of Sociology, however, knowledge about a subject and behaviors related to a phenomenon are themselves shaped, patterned, or conditioned by other, social, factors. Examples of such factors are one's ethnicity, educational level, religious background, and socio-economic status, among many others (Augustyn, 1991; Merton, 1957; Robertson, 1989; Wright, 1992).

The sociological perspective used for understanding, explaining, and predicting variations in the knowledge of people is capable of generating testable hypotheses that address such general questions as the following, which are of central interest to this dissertation:

1. What social and demographic characteristics of individuals are associated with the amount of accurate knowledge they hold about how AIDS is contracted or spread?

2. What social and demographic characteristics of individuals are associated with the amount of accurate knowledge they hold about the effect of AIDS on the body?

3. What social or sexual behaviors are associated with the amount of accurate knowledge individuals hold about how AIDS is contracted or spread, or about the effect of AIDS on the body?

4. What needle/injection-related behaviors, from drug-taking or tatooing, are associated with the amount of accurate knowledge individuals hold about how AIDS is contracted or spread, or about the effect of AIDS on the body?

With the above in mind, the purpose of this dissertation, generally stated, was to attempt to identify from among a wide variety of factors--demographic, social, and sexual, among others--those that explain statistically significant amounts of variation in young individuals' AIDS-related knowledge and awareness.

AIDS, Blacks, and Hispanics

Specifically, the study was concerned with AIDS knowledge and awareness among Black and Hispanic individuals, especially adolescents, who constituted the majority of the sample investigated for the study. This sample was considered important to study because, as the literature reviewed in this dissertation will show, young Black and Hispanic individuals have among the highest rates of AIDS in society, caused by their frequent failure to practice safe sex. As a result these groups

pose one of the greatest threats of spreading AIDS throughout society. It is therefore imperative that the awareness, knowledge and behaviors related to AIDS among young Blacks and Hispanics be understood, so that effective educational measures can be taken to curtail unsafe sex practices among these groups.

The incidence of AIDS among ethnic groups in America has been documented by the Center for Disease Control (CDC). According to their AIDS Surveylance Report (CDC National AIDS Hotline, 1993), the total cumulative numbers of reported cases of diagnosed AIDS for different ethnic groups in the United States, from 1981 through December 1992, is shown in table 1.

Table 1

Reported Cases of Diagnosed AIDS in Different U. S. Ethnic Groups, June 1981-December 1992

Ethnic Group	Frequency	Percentage of Reported AIDS Cases	Percentage of U. S. Population (1990)*
White (Not Hispanic)	132,625	52.32	75.30
Black (Not Hispanic)	75,997	30.00	12.10
Hispanic	42,199	16.65	9.00
Asian and Pacific Island Countries	1,610	.01	2.90
Native American	448	.002	.70
TOTAL	253,448	100.00	100.00

*Source of percentages: Bureau of the Census, U. S. Department of Commerce, World Almanac and Book of Facts, 1992.

As can be seen in Table 1, the percentages of Blacks and Hispanics with AIDS is greater than their respective percentages in the national population, whereas the percentage of Whites with AIDS is less than their percentage in the population. It is also relevant in this context to note that the percentage of Native Americans with AIDS and the percentage of Americans from Asian and Pacific Island countries with AIDS were also

lower than the percentage of these groups in the population. Only Blacks and Hispanics, among all ethnic groups, had a higher percentage of AIDS than their respective percentages of the U. S. population. In the case of Blacks, the percentage discrepancy is 17.90 and in the case of Hispanics the percentage discrepancy is 7.65. In contrast, for Whites the percentage with AIDS was 22.98 less than their percentage in the U. S. population. These statistics support the contention made above, that it is crucial to learn all we can about the AIDS-related behaviors of Blacks and Hispanics, since members of these ethnics are most likely to engage in high-risk behaviors that can lead to AIDS (Augustyn, 1991; Bower, 1991; Thomas & Hodges, 1991; Sweat, 1992).

This disproportion persisted when comparing the rates (per 100,000 of the U. S. population) of Blacks and Whites who have died from AIDS, according to the National Center for Health Statistics (World Almanac, 1992, p. 948). In 1990, for example, the rate of Blacks who died from AIDS was 23.5 percent whereas the comparable rate for Whites was 7.9 percent, about two-thirds less.

The trend indicated by these statistics is corroborated for Blacks by Health and Human Services Secretary Louis Sullivan (Sullivan Warns, 1991), who recently reported that Blacks represent a staggering 35.2 percent of all new diagnosed AIDS cases. Sullivan has

urged federal health agencies to boost research and education that will reach Black communities.

According to Stewart (1991), approximately 44 percent of all Black men who have AIDS are homosexual, and that figure may be low because many will not acknowledge their sexual preference. This figure appears to be consistent with the fact that AIDS has been overwhelmingly prevalent among homosexuals since it was first reported in 1979.

Thomas and Hodges (1991) documented the high-risk behaviors of Black and Hispanic gay and bisexual men in their survey study of 91 such men (62.7% Black, 36.1% Hispanic). The researchers found that--although 72.2 percent of the subjects had been tested for HIV antibodies and 95.6 percent knew where to go to be tested--34 percent of the subjects reported having had sex with someone who had tested HIV-positive or was diagnosed as having AIDS. This startling statistic may be tempered by the fact that the researchers also found that 90 percent of the respondents knew that correct use of condoms offers protection from HIV infection (and thus they may have used condoms when having sex with HIV-positive partners) and that oral sex (relatively safe with respect to contracting AIDS) was the most frequently reported sexual behavior.

Based on past trends, Page and Bazell (1991)

predicted that in the 1990s AIDS will remain a prominent disease among Blacks and Hispanics, as they expressed dismay at Black leaders, who have refused to address the issue sufficiently.

The high rate of AIDS among Blacks and Hispanics could be explained, at least in part, by a finding from a study reported by Bower (1991). The study, a national survey of behaviors that increase the risk of contracting AIDS, indicated that a large majority of people with multiple sex partners do not use condoms--particularly in Black and Hispanic communities.

According to Brown (1991) AIDS is not only prevalent among Black and Hispanic males; it is also relatively prevalent among heterosexual Black females. Brown claims, in fact, that AIDS is the number one killer of such women under age 44 in New York and New Jersey.

Jemmott, Jemmott and Fong (1992), after corroborating that the number of cases of AIDS has been increasing disproportionately among Blacks in the United States, especially among Black adolescents, argued for AIDS prevention programs to reduce the risk of Blacks from sexually transmitted HIV infection. The researchers also conducted a prevention study of 157 Black male adolescents, who were randomly assigned to receive either an AIDS risk-reduction intervention, aimed at increasing AIDS-related knowledge and weakening problematic

attitudes toward risky sexual behavior, or to receive a control intervention on career opportunities.

The findings from the study showed that the adolescents who received the AIDS intervention subsequently had greater AIDS knowledge, less favorable attitudes toward risky sexual behavior, and lower intentions to engage in such behavior than did those in the control condition. Follow-up data collected three months later also revealed that the adolescents who had received the AIDS intervention reported fewer occasions of coitus, fewer coital partners, greater use of condoms, and a lower incidence of heterosexual anal intercourse than did the other adolescents. From these data, Jemmett, Jemmett and Fong concluded that interventions that increase knowledge about AIDS and change attitudes toward risky sexual behavior may have salutary effects on Black adolescents' risk of HIV infection.

This finding directly relates to one of the major aims of the current study, which is to increase understanding of factors related to AIDS knowledge and awareness, especially among Black and Hispanic adoleslcents, for the ultimate purpose of decreasing AIDS-related behaviors, especially those involving sex and intravenous drug injections. These behaviors are relatively prominent among Black and Hispanic adolescents and contribute significantly to such individuals

contracting AIDS (Friedman, Lipton, & Stimmel, 1991).

Despite these figures, the myth persists, according to Lester and Saxxon (1988) that AIDS is a disease of gay Whites. Further, according to these authors, the homophobic reaction of Black leaders and the racist reactions of care institutions may have contributed to this epidemic. Inadequate health and education facilities, poverty, and poor nutrition--which may compound risk of infection after exposure to the virus--are conditions that exist in U. S. ghettos where Blacks and Hispanics are being infected by the AIDS virus in increasing numbers. In keeping with the main purpose of this study, it is suggested by the authors that culturally and racially sensitive educational materials be developed for this population.

Significance of the Study

Despite the large literature on AIDS, there is a paucity of research on the relationship of AIDS-related knowledge, awareness, and behaviors among heterosexual Black and Hispanic adolescents; and the researcher could find no literature on these groups in a prison setting, making the current study unique. Since these groups have among the highest rates of AIDS in American society from risk-taking behaviors involving needle use and unprotected sex, they have the greatest chance of

spreading the deadly disease throughout society. The findings from the proposed study can hopefully identify correlates of knowledge and awareness of AIDS and risk-behaviors that lead to AIDS, especially unprotected sex and needle use among Black and Hispanic adolescents. This knowledge will hopefully provide leads that will stimulate further, more in-depth research of these sociological factors, towards the ultimate goal of contributing towards the eradication of this deadly disease, AIDS, from society.

In addition, the findings from this study can be incorporated into various types of curricula, in different types of educational institutions, especially public schools; and they can be used by counselors who advise adolescents in schools as well as in prisons, among other types of institutions. These findings can be used to not only enhance intellectual understanding of the phenomenon of AIDS and its impact on specific ethnic groups, especially Black and Hispanic communities, but the findings can also be used in behavior-change programs, which attempt to use the knowledge as the basis for retraining or training in specific behaviors, such as use of a condom before sexual intercourse.

Theoretical Perspective of the Study

According to the viewpoint of basic sociological

theory, differences among individuals in the knowledge they possess about a phenomenon are not random but rather are patterned by social factors (Mannheim, 1955; Merton, 1957; Ornstein, 1992; Robertson, 1989; Rockwell, 1988; Williams, 1970). The sociological perspective minimizes or discounts the importance of such non-social factors as genetics, individual psychology, or fate to explain, understand and predict the knowledge possessed by individuals in society. According to Rockwell (1988), the phenomenon of AIDS can best be understood from research around the sociological concepts of (a) culture (sexual attitudes, values, and behavior); (b) social structure (racial/ethnic relations); (c) population growth rates and dependency ratios; and (d) human ecology and trade-offs of development and medicine. Ornstein (1992) found that attitudes toward AIDS were strongly correlated with general views about civil liberties and about gays and lesbians. Sweat (1992) studied knowledge about AIDS and tested a model of risk-taking using data from the National Health Interview Survey AIDS Knowledge and Attitudes Supplement of 1988 and 1989, which he claimed was one of the few surveys to collect information about AIDS, from a representative sample (N = 71,379) of the U.S. population.

According to Sweat, analysis of the data revealed that mass media was the most common source of information

about AIDS, with exposure to AIDS information from mass media reported most often by those who were young and more highly educated. Knowledge about AIDS clustered into four distinct factors: HIV transmission, AIDS definition, technical issues, and commonly known facts about AIDS.

Sweat found that the best predictor of knowledge about AIDS was exposure to AIDS mass media campaigns. Sweat also found that perception of risk of acquiring AIDS was rare among the U.S. population, yet many people misinterpreted their potential for getting AIDS. Among those with no reported risk behavior, overestimation of risk was associated with lower education, male gender, single marital status, Non-White race, and knowing a person with AIDS. For those at risk for AIDS, underestimation of risk was associated with higher education, female gender, and being married. A path analysis showed that perception of risk for acquiring AIDS was best predicted by demographic factors and social networking factors, rather than knowledge about AIDS. According to Sweat, mass media campaigns to educate the public about AIDS have increased knowledge, but have failed to increase accurate risk perception. Many people in the United States continue to misinterpret their risk of acquiring AIDS due to biases about who is likely to get infected with the AIDS virus.

Social science theory most basically stresses that individuals learn from significant others in their lives, through the process of primary and secondary socialization (Mead, 1934), and more generally through cognitive social learning processes (Bandura, 1977; Flora & Thoresen, 1988) that include mass media (Chandarana et al., 1990; Dolan et al., 1990; Sweat, 1992), observation, and mimicking (Bandura, & Walters, 1963). Human behaviors are also shaped by knowledge, as well as by attitudes and beliefs (Adorno, 1950), environmental stimuli and conditioning (Skinner, 1971), and social structural factors (Merton, 1957).

Following from this paradigm, which focuses on the patterning of knowledge in a social context, one would expect that certain individuals in society would have more accurate information about AIDS than others. Among the variables commonly studied by sociologists to explain, understand, and predict variations in human knowledge (and behaviors) are (a) the formal educational experiences and attainments of individuals and their parents (Jencks, 1979; Kohn, 1963); (b) the socio-economic status of individuals and their families (Bendix, & Lipset, 1966; Lenski, 1978; Marx, 1964); (c) the marital and family status of individuals (Goode, 1956; Lasch, 1977); and (d) the type of peer associations of individuals (Coleman, 1961; Riesman, 1961).

In the current study, these variables and other social factors were examined in relationship to individuals' knowledge about AIDS, in the attempt to explain variation in such knowledge. While the researcher expected that such relationships would be established by the study, it is important to mention in this context that knowledge was not assumed to be related to behavior change. The often independent status of behavior relative to knowledge has been established in a variety of studies (Farley et al., 1991; Fisher & Misovich, 1990; Goodman & Cohall, 1989; Kelly et al., 1989). The implications of this relationship for social scientists, communicologists, politicians and others who wish to institute educational programs for the purpose of reducing the further spread of AIDS will be discussed in the "Conclusions" chapter.

Chapter II

Review of Related Literature

In this chapter, research studies and other literature pertinent to the current dissertation are reviewed and synthesized. In the first section, the focus is on studies that involve assessing subjects' knowledge of AIDS, particularly among adolescents, with many of the studies also addressing risk-behaviors related to AIDS; in the second section, attention is on studies that primarily concern AIDS-related behaviors among adolescents, especially sexual behaviors, with many of the studies also interested in assessing the subjects' attitudes or concerns about HIV infection; in the third section, nonempirical articles are reviewed that discuss the types of programs, methods, and approaches their authors think are needed to stop the spread of AIDS, especially among adolescents, but also among other high-risk populations, such as prostitutes, intravenous drug users, and homosexuals.

Research on Knowledge of AIDS

As discussed in Chapter I, the current study is primarily concerned with assessing the knowledge that incarcerated adolescents have about AIDS and relating their knowledge scores to a host of behavioral and

personal background variables. Along with the researcher, many investigators of the AIDS phenomenon have argued that the degree of knowledge individuals have about AIDS is crucial for helping to prevent the spread of the deadly disease, and have conducted studies of subjects' knowledge of AIDS, among other AIDS-related phenomena.

Mech and Pryde (1994) used inventory data to examine knowledge about AIDS and sexually transmitted diseases among 533 older adolescents who were state wards in out-of-home placements in Illinois, Kansas, and Ohio; and the investigators compared these findings to results of the National Adolescent Student Health Survey (N = 1,781 tenth graders). The findings showed that the older foster adolescent sample scored slightly higher than the comparison sample. Within the foster youth sample, females scored higher than males, and whites scored higher than nonwhites. Overall, white females scored highest, and minority males scored lowest. Based on the findings, Mech and Pryde suggested that special attention in AIDS education should be directed toward male minority foster adolescents.

According to Brooks-Gunn and Furstenberg (1990), most teenagers and adults (well over 90 percent by 1988), no matter what their age or race, know that sexual contact and intravenous drug use are ways in which HIV

infection spreads. All the youth surveys conducted from 1985 to 1987, however, indicated that teenagers were generally less informed about how HIV is transmitted than adults. Black teenagers were more likely to have misconceptions than were White teenagers. In one San Francisco study, about two-thirds of the subjects knew that condom use would lessen the probability of contracting AIDS, even though well over 90 percent knew that HIV could be transmitted sexually (DiClemete, Zorn, and Temoshok 1986). In a Philadelphia survey, when asked about the best birth control method for avoiding sexually transmitted disease, including AIDS, 94 percent of the males and 90 percent of the females listed condoms. Girls who were sexually active were slightly more likely to list condoms than virgins. Age differences were negligible although 14-year-old girls were somewhat less likely to list condoms (78 percent of the 14-year-olds versus 90 percent of girls 15 years of age or older).

Sacks (1991) investigated the relationships among knowledge of AIDS, perception of risk, safer sex practices, and sexual locus of control in a suburban New York college population of 18 to 24 year olds. One hundred and seventeen single, sexually active, heterosexuals from various disciplines and levels of education were recruited from undergraduate sociology classes in 1989. These research participants were asked

to complete a five-part questionnaire consisting of the Revised Knowledge Scale of AIDS, the Revised Perceived Risk of AIDS Scale, Revised Safer Sex Practices Inventory, Sexual Locus of Control Scale, and demographic questions. The students were predominantly female (62.4%), white (79.5%), and Catholic (59.8%), with a mean age of 20.72, and had completed two or three years of college.

From the study, Sacks found that over 97 percent of the subjects reported that safer sex practices reduced the likelihood of contracting the HIV/AIDS. The antibody blood test for HIV was taken by 8.5 percent of the students, and 24.8 percent of them encouraged their sex partners to take it. The mean number of sex partners among the research participants in the last year was 1.49 (SD = 1.03), and in the last 5 years was 4.22 (SD = 3.94). Sacks also found that the respondents reported considerably high levels of knowledge of AIDS, low moderate perception of risk, some safer sex behaviors, few sexual behavioral changes in regard to HIV/AIDS, and an internal sexual locus of control orientation. Knowledge of AIDS and lower perception of risk, safer sex practices and change related to safer sex practices, and safer sex practices and external locus of control appeared to be related, although correlations were weak but significant.

Singh, Zemitzsch, Ellis, Best, et al. (1994) surveyed the AIDS knowledge and attitudes of 120 male and 100 female adolescents (mean age = 13.9 years) with serious emotional disturbances. The sample was comprised of 49 African American and 61 White patients from an inpatient child and adolescent psychiatric hospital, and 59 African American and 51 White 5th-12 graders from an alternative public school. The participants completed a survey regarding knowledge of casual, sexual, and intravenous transmission, as well as knowledge of risk groups and general disease knowledge. The findings showed that the majority of the participants knew the main modes of HIV transmission, and there was no difference in their knowledge level, regardless of whether they were from the school or hospital. The participants' ages and races were related to their level of knowledge. Gender, race, and age also predicted attitudes toward behaviors that might lead to HIV infection and tolerance of those with AIDS.

Ornstein (1992) used data from a 1988 telephone survey of 1,250 Canadians to examine the determinants of knowledge about AIDS and attitudes supporting protection of the civil rights of HIV-infected persons. Most subjects were able to describe AIDS and know how the virus was transmitted. Strong support existed for legal sanctions to prevent discrimination in employment and

housing, and the majority supported anonymous testing for HIV infection. Policy arguments phrased in terms of the authority of the medical profession resulted in much more conservative responses. Attitudes toward AIDS were strongly correlated with general views about civil liberties and about gays and lesbians.

Chandarana et al. (1990) reported the results of a controlled study designed to assess the impact of education on AIDS among elementary school students. There were 1,825 students in the study assigned to the trial group and 778 to the comparison group. Overall, the results showed a significant increase in the students' level of knowledge of AIDS following their classroom lessons on AIDS. Further, the students exposed to AIDS education expressed more accurate and appropriate beliefs about the transmission of AIDS than the students not exposed to the AIDS education. The students' reports indicated that television and magazines were their main outside sources of information about AIDS. Generally, the students demonstrated a positive attitude toward the AIDS curriculum. From their study, the researchers concluded that classroom education on AIDS is effective in imparting knowledge and changing students' beliefs about AIDS. Relating knowledge to behavior, the researchers stated that further periodic assessments of AIDS education programs would be required at a variety of

educational levels to determine if the change would lead to alteration in behavior.

Dolan et al. (1990) surveyed 942 students in grade 7 and 8 at the Ottawa Board of Education before the introduction of compulsory AIDS education. They found that television was seen as the most common and credible source of information about AIDS. Among girls, parents were seen as a credible source of information and, among boys, the school nurse was seen as a credible source of information about AIDS. Boys seemed to know more about the transmission of AIDS than girls did. For both sexes, there was high awareness of condoms as an effective method of preventing the spread of AIDS. Avoidance of sexual intercourse as an effective preventive measure was less well known. The researchers concluded from their study that AIDS education in school should emphasize abstinence as well as barrier methods as effective methods in preventing AIDS, and utilize the media, parents and family in educating students about AIDS.

From their study of adolescents in San Francisco high schools, DiClemente et al. (1988) found that White adolescents were more knowledgeable than Black adolescents about the cause, transmission, and prevention of AIDS, and that Black adolescents were more knowledgeable than their Latino peers. Black and Latino adolescents were approximately twice as likely as White

adolescents to have misconceptions about the casual transmission of AIDS. Less knowledge about AIDS and prevalent misconceptions were associated with greater levels of perceived risk of contracting AIDS, according to the researchers.

To measure the effect of school-based education on adolescents' AIDS knowledge and attitudes, Farley et al. (1991) conducted surveys in two high schools and compared them to a baseline survey conducted in the same schools the previous year. One month before the follow-up survey, students in one of the two schools (the intervention school) had received a two-day education program about AIDS; students in the other (control) school had received no specific AIDS education. The researchers found that students in both schools showed increases in AIDS knowledge between the baseline and follow-up surveys. Also, it was found that students in the intervention school were more likely than students in the control school to answer questions correctly about the safety of blood donation (82% vs 73%) and the possibility of HIV transmission from a former intravenous drug user (85% vs 67%); they were also less likely than students in the control school to believe persons with AIDS should have certain restrictions on their activities. From their study, the researchers concluded that, while students' level of knowledge about AIDS and

HIV has been improving over time even without intervention, specific education programs can still transmit important information, including information that is necessary to prevent or change risky behaviors.

Fisher and Misovich (1990) collected data to (a) document extant levels of AIDS-risk behavior, AIDS-preventive behavior, AIDS-knowledge, and attitudes toward prevention among college students, (b) assess the evolution from 1986 to 1988 of college students' behavioral and attitudinal responses to the AIDS epidemic, and (c) document changes over time in college students' knowledge about AIDS. Although students' then-current levels of AIDS-knowledge were found to be relatively high, and their attitudes toward prevention were in the neutral range, actual preventive behavior was low, and unsafe sexual practices were high, the researchers found.

Concerning changes in these dimensions across time, the researchers determined from data on comparable samples of undergraduates in 1986, 1987, and 1988, that there were substantial increases in knowledge about AIDS, in the favorability of attitudes toward certain "safer-sex" behaviors (e.g., discussing "safer sex"), and in the utilization of relevant informational resources. Students' perceptions of others' vulnerability to AIDS (but not their own vulnerability) had also increased.

However, at the same time, students reported a decrease in the safety of their sexual behaviors. Numbers of sexual partners, likelihood of being in an intimate (sexual) relationship, and unsafe sexual practices were all found to have increased since 1986.

As part of a larger study designed to provide an AIDS education and prevention program from low-income Black and Latina women in Los Angeles County, Flaskerud and Nyamathi (1989) conducted a pilot study of Black (n=51) and Latina (n=56) women to (a) determine their AIDS- related knowledge, attitudes and practices, (b) gather baseline data, and (c) test an instrument that would measure these variables. As regards the latter, the need for changes in the format and administration of the instrument were identified due to nonresponse of women as well as differences in their knowledge and attitudes.

In general, the study showed that Black women had more knowledge of AIDS than Latina women and more positive attitudes, although behavioral practices between the groups did not differ.

Goodman and Cohall (1989) conducted a survey to assess the knowledge, attitudes, beliefs, and behaviors concerning acquired immunodeficiency syndrome in a group (n=196) of inner city adolescents in New York City. Sexual activity was the major risk factor for AIDS in

this population, since 58 percent of the adolescents had engaged in sexual intercourse and 12 percent of these subjects had never used contraception. There were small reported rates of homosexuality, anal intercourse, and prostitution. Among the respondents, 22 percent reported alcohol use and 22 percent had tried recreational drugs. None had ever taken drugs intravenously.

The researchers found that the subjects' knowledge of human immunodeficiency virus (HIV) transmission was generally good, although there were prominent misconceptions. For example, 52 percent of the adolescents believed that donating blood, in itself, could transmit HIV. Among the respondents, 47 percent said they "never" or "rarely" reported behavior changes because of concern about AIDS in the previous six months. Those who changed behaviors tended to have a greater perceived risk, worried more frequently about the disease, and had a better knowledge of means of HIV transmission than those subjects who had not changed their behaviors. Of those reporting behavior changes, 66 percent (25 percent of the total study group) claimed to be using condoms "currently," and 16 percent (6 percent of the total study group) claimed to be abstemious. More Black adolescents than Hispanic adolescents instituted behavior changes. Of Black female adolescents, 71 percent were sexually active, compared with 30 percent of

Hispanic female adolescents.

Assessment of beliefs in methods of risk reduction indicated that, although female adolescents were more likely to believe that condoms were a good way to decrease their risk of acquiring HIV, those who were sexually active were less likely than men to institute the behavior change of insisting on condom use or of having their partners use condoms the last time they had sexual intercourse. Of sexually active female adolescents, 73 percent did not insist on condom use the last time they had sexual relations, whereas 51 percent of sexually active male adolescents did use a condom. According to Goodman and Cohall, these adolescent women were not using their knowledge concerning HIV transmission and protection to alter behavior effectively and thereby decrease their risk. Also, the researchers found, 21 percent of respondents spontaneously claimed that they would commit suicide if they tested positive for the HIV antibody.

From their findings, Goodman and Cohall concluded, among other things, that for female adolescents, other motivational and knowledge-transmission strategies besides education must be used, and that the consequences of the use of the HIV antibody test must be carefully considered for members of this age group.

Hall et al. (1990) conducted a survey of 710

American Indians from Oregon, Washington, and Idaho to estimate the population's risk of contracting AIDS, based on both their indicated knowledge and behaviors. The researchers found that, in contrast to 3 percent of the general population, 10.6 percent of male and 6.4 percent of female Pacific Northwestern American Indians in the subject groups were considered at high risk for contracting AIDS.

Hingson et al. (1990) claimed that, despite substantial progress, adolescents remain at relatively high risk for contracting human immunodeficiency virus (HIV) infection. Two independent random digit-dial statewide Massachusetts surveys of 16-to 19-year-old persons conducted, respectively, from August through September 1986 and 1988 revealed that the proportion of teenagers who had discussed AIDS in schools increased from 52 percent to 82 percent. Knowledge about how AIDS is transmitted was also significantly higher in 1988 compared to 1986. The proportion of teenagers using drugs other than alcohol and marijuana declined from 13 percent to 9 percent between the two time periods, and intravenous drug use declined from 1 percent to 0.1 percent.

Also, the researchers found that among sexually active teenagers, the proportion who reported changes in sexual behavior to avoid AIDS had increased from 16

percent to 34 percent. The proportion who adopted condom use to avoid AIDS increased from 2 percent to 19 percent. However, the overall proportion of teenagers who reported sexual intercourse in the past year increased significantly from 55 percent to 61 percent. In 1988, among sexually active teenagers, 37 percent never used condoms and 33 percent used them only some of the time. Of all respondents, 18 percent reported unprotected sex with more than one partner in the previous year, and 3 percent reported unprotected sex with intravenous drug users.

From their study, the researchers concluded, among other things, that although mass media and school education may increase knowledge and stimulate some teenagers to change behavior, for others more personal forms of counseling may be needed. The effects of increasing physician counseling warrant special study, the researchers noted. Teenagers who had spoken to physicians about AIDS were much more likely to have adopted condom use to avoid HIV exposure. However, although 80 percent of adolescents had seen a physician in the past year, only 13 percent were counseled about AIDS.

Huszti et al. (1989) claimed that, although many schools were presenting AIDS education programs for adolescents, few had evaluated the effects of the

programs. Thus the researchers compared the effects of two different types of program presentation, a lecture or a film, to a no-program condition. From their study, Huzti et al. found that students who received the lecture demonstrated significantly greater knowledge gains than either of the other two groups. The lecture group's greater gain was maintained at the 1-month follow-up, although all three groups showed a decline in knowledge scores from posttest to follow-up. Both education programs significantly increased students' positive attitudes towards patients with AIDS; there were no differences between the two groups. Positive attitudes decreased equally for both groups from posttest to follow-up, although these scores remained significantly more positive than the pretest scores. Students in both treatment groups showed a slight increase in positive attitudes toward practicing preventive behaviors following the programs, but those attitude scores returned to baseline levels at follow-up.

The researchers concluded that, although educational programs increase knowledge and positive attitudes towards patients with AIDS, they do not appear to have a positive effect on attitudes towards practicing preventive behaviors. Thus, more intensive programs may be necessary to encourage behavioral changes.

An informal survey of knowledge about and behaviors

relevant to the spread of AIDS was conducted on the street in New York City during October 1986 by Kleinman et al. (1990). Their sample (n=204) included both IV drug users (60 percent) and "others" (40 percent). The informal nature of the interview suggested that respondents gave "striking" answers rather than the complete answers that would be expected in a formal interview situation (a smaller proportion of respondents reported salient knowledge about drug-related transmission of AIDS than had been found in other populations, using formal interview methods). The researchers found a close association between any accurate knowledge about spread of AIDS and likelihood of practicing one or more risk reduction behaviors. New users (persons who had been using drugs for only 1 or 2 years) were significantly less likely than others to have salient knowledge about AIDS transmission and also less likely to practice risk reduction measures.

A survey conducted by Manning et al. (1989) of 189 Louisiana teenagers and 80 Louisiana family physicians revealed that the teenagers overwhelmingly preferred to learn about acquired immune deficiency syndrome (AIDS) from a physician. This result stimulated the researchers to examine if family physicians shared adolescents' opinions that they are the best teachers for AIDS education and whether family physicians understand

adolescents' knowledge and beliefs about AIDS sufficiently well to be effective AIDS educators. Family physicians' responses to a questionnaire based, in part, on the Health Belief Model were compared with teenagers' responses about their knowledge, health beliefs, and preferred format and method of learning about AIDS. Results indicated that family physicians' predictions about teenagers' knowledge and beliefs about AIDS were not always accurate. Family physicians showed good agreement with teens in estimating their desired method and format for learning about AIDS, including their preference for a physician-instructor.

Another study conducted by Manning et al. (1989), using an in-depth, qualitative discussion method, examined freshmen's perceived susceptibility to AIDS and barriers to prevention. Groups were led by dormitory resident advisors as a follow-up to a survey questionnaire of college students' knowledge and beliefs about AIDS. Students' comments showed that many misunderstandings lay behind an apparent understanding of the facts about AIDS. These findings underscored how imperative it is that college health education programs be attuned to the needs and address the deficiencies of the particular student body.

Henderson, Weinman, and Smith (1994) examined the relationship between medical knowledge and myths about

AIDS and risk behaviors and attitudes among 510 adolescent females. The findings from the study showed that those individuals who expressed a lack of interest in educational programs about AIDS had the lowest scores on the Myth and Medical Knowledge Scales. Based on the findings, the investigators concluded that adolescent females who were not interested in AIDS education were at the highest risk for infection.

Matthews et al. (1990) conducted a study in Brisbane, Queensland to assess homeless youths' knowledge, attitudes and behaviors relating to AIDS. Data obtained from 40 homeless youths aged 15 to 19 years were compared with that from controls. The findings identified a significantly lower level of accurate knowledge of AIDS by the homeless youth on questions related to the transmission of AIDS and on measures to prevent infection. Furthermore, homeless youth exhibited higher levels of at-risk behaviors for the contraction of AIDS compared to nonhomeless youth. No significant differences regarding attitudes and beliefs about the disease were found between the groups.

Pritchard and Cox (1990) conducted a study of drug and solvent misuse and knowledge of HIV among 934 secondary school students. Drug misuse was found in 16 percent of the sample, including 5 percent who used hard drugs, which since 1985 represented a 3 percent decline;

but the researchers found among the subjects a 1 percent increase in the use of hallucinogens.

The researchers compared the misusers and nonusers with regard to their social characteristics, other illegal behavior, and their knowledge of HIV and other public health concerns. The results showed that misusers were more socially disadvantaged and more involved in other negative behaviors than the nonusers. Despite reasonable knowledge about HIV-related matters, the members of the misuser group were less accurate on all public health issues, appearing to "deny" the potential risks associated with drug misuse.

Rhodes and Wolitski (1990) conducted a study of 261 community residents, college students, and intravenous drug users to investigate perceived effectiveness of fear appeals in AIDS education posters. Experimental posters with high-fear pictures portraying disease severity were evaluated in terms of their perceived effectiveness in motivating people to use condoms. Posters also contained written messages communicating high and low levels of personal vulnerability and response efficacy.

The results showed that high-severity/fear posters were rated as significantly more effective than low-severity/fear posters ($p < .0001$). Age, gender, ethnicity, and group membership did not, in general, influence rated effectiveness. However, group membership

and age were significant as interaction with severity/fear level and response efficacy, respectively ($p < .01$). The researchers also found that the subjects showed no differential preference for posters portraying individuals whose ethnicity was the same as their own. The researchers reported that their findings confirmed previous research supporting the effectiveness of fear appeals and suggested that fear-oriented appeals may be effective in promoting changes in community norms and motivating individuals to adopt AIDS risk-education strategies.

Rhodes et al. (1990) conducted standardized survey interviews (n=325) and guided in-depth interviews (n=22) with injection drug users (IDUs) in Long Beach, California, to document drug usage and injection patterns, sexual practices, perceived risk of HIV infection, sources of health information, and knowledge and attitudes about AIDS. The results showed that most IDUs reported sharing needles (87.9%), and a large minority reported regular sterilization of needles or syringes (40.3%). Lower rates of needle sharing were reported among cocaine users than among heroin and speedball users. HIV seroprevalence was 5.7 percent (11/194). A greater percentage of sexually active female (60.7%) than male (20.5%) IDUs reported exchanging sex for money or drugs. Overall, 48.3 percent of IDUs

reported having made changes in their injection practices and 33 percent reported modifying their sexual behavior in order to avoid HIV infection. Differences in drug use, sexual practices, and drug treatment history were found with regard to gender, ethnicity, age, and type of drug injected.

Rickert et al. (1991) compared a peer-led vs. an adult-led AIDS education program on the knowledge, attitudes, and satisfaction of adolescents with their education. Eighty-two male and female adolescents, ranging in age from 12 to 18 years, were randomly assigned to a peer (n=27), adult (n=28), and control (n=27) group. Intervention consisted of the subjects receiving didactic information and viewing a videotape about AIDS transmission and prevention. All of the subjects completed the AIDS Knowledge Questionnaire--Revised, an AIDS Attitude Survey, and a measure of consumer satisfaction.

Statistical analyses revealed a significant effect for knowledge and attitudes toward practicing personal preventive behaviors and the seriousness of AIDS, with both peer- and adult-led groups being superior to controls ($p < 0.05$). Aside from satisfaction with providers, no other significant effects were found across the intervention groups. Satisfaction with providers showed an effect for sex ($p < 0.05$), with female

adolescents reporting more satisfaction with presenters than male adolescents. Although both adult and peer counselors were equally effective in promoting knowledge gains and appropriate attitude changes, more questions were asked of the peer counselors.

According to the researchers, these findings suggest that when education is presented by peer counselors, adolescents may be more likely to see AIDS as a personal danger, and that peer counselors should be considered when designing comprehensive AIDS education programs.

Roscoe and Kruger (1990) surveyed 300 late adolescents to assess their knowledge of AIDS, and to determine if and how their sexual behavior had changed as a result of changes in knowledge. The findings from the study suggested that late adolescents were quite knowledgeable regarding AIDS and its transmission; however, only about one-third of the subjects had altered their sexual behavior as a result of the disease.

Siegel et al. (1991), in an attempt to gain information about adolescents' AIDS knowledge, attitudes, and behaviors, surveyed 1,967 junior high school students in three schools in an inner city school district. The ages of the subjects ranged from 11-16 years, and 48 percent were boys and 52 percent were girls. Ethnically, 33 percent of the subjects were Asian, 31 percent were African-American, 24 percent were Latino, and 5 percent

were White.

The results showed that African-American students had greater AIDS general knowledge than Asians and similar general knowledge to Latinos and Whites. Misconceptions about casual contagion of AIDS were, however, common among members of all groups, and students with these misconceptions were more likely than students without these misconceptions to believe that those with AIDS should not be allowed to attend school. A large proportion of students had engaged in high-risk behaviors, including sexual intercourse, drinking alcoholic beverages, and using street drugs, with more boys than girls reporting each of these activities. Among individuals who reported having had sexual intercourse, a positive association was found between the belief that condoms are effective in preventing HIV infection and use of condoms.

The researchers concluded that these findings supported the possibility that improving knowledge about HIV transmission would result in more tolerance toward students with HIV infection and would result in less high-risk behavior.

Seltzer and Benjamin (1989) studied 100 female teenagers attending a teenage pregnancy program to determine the extent of their awareness about acquired immunodeficiency syndrome and the impact of such

knowledge on their sexual behavior. The researchers reported that 98 of the subjects knew that AIDS is a disease, 45 knew that it is fatal, and all knew that it can be transmitted by sexual intercourse. After becoming more aware of AIDS, 59 of the subjects reported that they had changed their sexual habits, 41 decreased their number of sexual partners, and 13 who had not used condoms started using them. Only seven of the subjects, however, began to obtain more information about their partners' sexual and social histories, and half of those who decreased their number of partners still continued relationships with more than one individual.

From their study, Seltzer and Benjamin concluded that publicity about AIDS resulted in a favorable change in the sexual practices of these teenagers. However, the researchers also cautioned that their findings indicated a need for further improvement in specific areas of education, such as the value of obtaining more information about sexual partners, more awareness of the importance of multiple-partner relationships in the spread of AIDS, and more emphasis on the important role of condoms in preventing AIDS virus transmission.

Slonim-Nevo et al. (1991) conducted a survey study to assess the level of knowledge about and attitudes toward AIDS among youth residing in residential centers, and the degree to which the subjects engaged in high risk

behaviors related to AIDS. In addition, the study evaluated the impact of a short educational intervention program on the youth's knowledge, attitudes, and behaviors related to AIDS.

From their study, the researchers found that the respondents were relatively knowledgeable about the disease and how to prevent it, although a substantial portion of them did not hold positive attitudes towards prevention and were actually engaging in unsafe sexual behavior. The results also showed that a short intervention program that provided information about AIDS was ineffective in reducing the subjects' involvement in high risk activities.

Given that most researchers covered in this chapter believe that AIDS education is crucial for reducing the chance of individuals contracting and spreading HIV, an article by Solomon and DeJong (1986) is quite pertinent to the literature review, in that it describes various types of methods for educating individuals about AIDS.

Specifically, Solomon and DeJong claimed that drama-based methods are especially relevant to AIDS risk-education efforts, because they afford an excellent means of modeling the communication and interpersonal skills that are fundamental to the desired behavior changes. Drama-based videotapes, for example, would be especially useful for seropositive men and women facing exceptional

stress as a consequence of learning their diagnosis, the authors argued, because these individuals would have much to gain from a combination of supportive counseling and dramatic enactments of others like themselves dealing with their newly discovered diagnosis. Clinic-based videotapes would also be good resources for counselors of, among other groups (a) seropositive bisexual men who faced the difficult prospect of telling their diagnosis to wives and girlfriends who may never have suspected that they would be at risk, (b) seropositive women who are pregnant or contemplating pregnancy, and (c) IV drug users. The authors cautioned that such videotapes should never be used to supplant good interpersonal communications between health providers or health educators and their clients, but they can be a powerful additional resource.

Solomon and DeJong also believe that social marketing holds great promise as an AIDS risk-reduction strategy and is particularly well-suited for promoting condoms, the use of which is critical for reducing HIV transmission among both homosexuals and heterosexuals. Over the last two decades, the authors argued, social marketing campaigns have been successful in dramatically increasing the use of condoms, often for birth control purposes but in some cases for sexually-transmitted disease (STD) prevention, too. In this task,

establishing "strong social endorsement" is critical. More than any other recommendation, the authors urged that AIDS risk-reduction strategies should focus on establishing a social climate in which people feel that it is the norm and not the exception to adopt AIDS risk-reduction behavior. Rather than emphasizing the graphic depiction of "safe sex" acts, the emphasis must be on shaping group attitudes and developing the necessary interpersonal and communication skills to act on one's beliefs.

Solomon and DeJong claimed that there is a consensus about what AIDS risk-reduction messages should be, and there is a growing body of knowledge about how best to shape, package, and deliver those messages. There now needs to be, however, concerted efforts at the national, state, and local level to develop and implement innovative programs, the authors argued.

Sonenstein et al. (1989) reported data from the 1988 National Survey of Adolescent males that indicated that 60 percent of never-married young men between the ages of 15 and 19 were sexually active. Among 17-19-year-old males living in metropolitan areas, the rate of sexual activity reported in 1988 was 15 percent higher than that reported in 1979. This increase, which encompassed a rise of 23 percent among black males and 13 percent among nonblack males, has implications for an increase in AIDS

infection among this group and their sexual partners.

Given this, it is important to note that only slightly more than half of the sexually active males in the 1988 survey reported that they had used a condom the last time they had intercourse. Among both black and nonblack youth aged 17-19 living in metropolitan areas, however, the rates of reported condom use at last intercourse more than doubled between 1979 and 1988.

Conversely, reported reliance on ineffective methods of contraception or use of no method at last intercourse was 60 percent lower, according to the 1988 study. When first intercourse occurred within two years of the 1988 survey, the odds of using a condom were increased by 110 percent over the odds when intercourse occurred between 1975 and 1982, after controlling for the effects of age at first intercourse, race and ethnicity.

According to the researchers, the young men in the sample were very knowledgeable about how the human immunodeficiency virus is transmitted, and over three-quarters of the sample did not dismiss the disease as uncommon, nor did they think that using condoms to prevent the spread of AIDS was too much trouble. The rates of condom use were significantly lower than average, however, among (a) young men who had ever used drugs intravenously or whose partners had done so, (b) young men who had ever had sex with a prostitute and (c)

those who had five sexual partners or more in the past year.

Weisman et al. (1989) conducted a survey that measured AIDS knowledge, perceived risk, and prevention among 404 sexually active adolescent women who were family planning clinic patients in Baltimore, Maryland. The researchers found that, among the subjects, knowledge about AIDS was high, with the average respondent answering seven out of nine questions correctly. Slightly more than half of the teenagers reported some degree of perceived risk that they could get AIDS. However, perceived AIDS risk was not predictive of condom use at last intercourse. The strongest predictor of condom use was having asked a partner to use one, suggesting that adolescent women may exert a greater influence of condom use than has been previously assumed.

Based on their findings, the researchers recommended that personalized AIDS prevention programs be integrated into family planning programs, that adolescent clients be advised to use condoms with spermicide, and that these individuals be assisted in acquiring the social skills needed to negotiate condom use with their partners.

Research on AIDS-Related Behaviors and Attitudes

In addition to studies of knowledge of AIDS (with and without related investigations of sexual practices),

a variety of studies have focused on other aspects of AIDS besides knowledge per se, that have implications for risk-reduction strategies and help to interpret and understand the findings from the present investigation. These studies, which focus on attitudes towards AIDS and condom use, sexual practices, and level of concern about the AIDS epidemic, among other things, are now reviewed in this section.

Shoop and Davidson (1994) surveyed 80 male and female heterosexual adolescents, between 15 and 18 years of age, concerning sexual behavior and condom use, AIDS knowledge, ability to communicate with sexual partners about AIDS-related issues, and communication with parents about sex and AIDS. The findings from the study showed that the participants' perceived ability to communicate with partners about AIDS was the strongest predictor of self-reported condom use. Differential effects were found for prior experience in discussing sensitive matters with parents: Participants who had discussed general sexual issues with parents felt more competent to talk about AIDS with their sexual partners, whereas those who had discussed AIDS with parents felt less competent. According to the investigators, the findings suggested that knowledge about AIDS is not, by itself, an effective deterrent to unsafe sexual practice among adolescents.

In a study by St. Lawrence, Brasfield, Jefferson,

Allyene, et al. (1994), 295 African-American adolescents (aged 13-18 years) who reported high or low levels of social support (SS) completed a SS inventory and instruments measuring attitudes about and knowledge of AIDS, health locus of control, and condoms. Self-reported sexual behavior for the preceding two months and self- and response-efficacy were also measured. The findings revealed that participants with low SS knew less about HIV and AIDS, held more negative attitudes toward condoms, and were significantly more likely to engage in casual sex than participants with higher SS. Participants with low SS also reported more sexual partners who were not monogamous, more frequent coercions into unwanted sexual activity, and higher rates of sexually transmitted diseases. The investigators concluded that participants who perceived themselves as having lower levels of SS were at higher risk for HIV infection and other negative consequences of early sexual activity. In particular, male participants with low SS were concluded to be the most vulnerable group.

Millstein, Moscicki, and Broering (1994) examined beliefs and behaviors regarding risk for HIV transmission using a questionnaire administered to a clinically based, ethnically diverse sample of 696 sexually active female adolescents recruited from health clinics. The participants were categorized into four risk status

groups on the basis of their history of intravenous drug use, sexually transmitted disease (STD), and probable risk of contact with an infected individual (living in a high-risk geographic location, sexual promiscuity, sex with male homosexuals/bisexuals). The findings showed that the participants in the highest risk group had high rates of substance use, anal intercourse, and intentions to have future risky sexual partners. A second high-risk group reported high rates of STDs, inconsistent condom use, and less HIV knowledge. Based on the findings, the investigators concluded that different subsets of higher risk adolescents may require different intervention strategies.

Augustyn (1991) analyzed a portion of the data collected in the baseline telephone survey of a community-based HIV-1 risk-reduction intervention in order to describe the factors that influence condom use in a primarily heterosexual population of young, Black, urban adults. These factors were measured in the context of an application of the theory of planned behavior. The independent variables were: attitude toward condom use, norms surrounding condom use, and perceived control over condom use. The dependent variables were: intention to use condoms, and past and current condom use. From the data collected, Augustyn found little support for the theory of planned behavior, and that attitude toward

condom use was the only significant predictor of intention to use a condom. Age, attitude and subjective norm predicted current condom use, and age and attitude were significant predictors of past condom use (at the last sexual episode and during the past year).

Several gender and age differences were found by Augustyn for specific beliefs and norms concerning condoms. Males were significantly more likely than females to believe that the use of a condom would prevent the transmission of HIV-1 and sexually transmitted diseases and would prevent pregnancy. Males were less likely than females to believe that use of a condom would be comfortable and acceptable to a partner, but perceived a more positive parental and peer norm surrounding condom use. Individuals aged 15-24 years were more likely than individuals aged 25-35 years to believe that condom use would be acceptable to their partners, generally held a more positive attitude toward condom use, perceived a more positive norm surrounding condom use and were more likely to be frequent condom users.

According to Augustyn, these findings point to the importance of identifying the beliefs and norms surrounding condom use for different subgroups of the population, and designing HIV-1 risk-reduction programs which take into account possible differences in beliefs and norms.

Ku (1990) examined self-reported risk behaviors related to HIV infection in teenage men, based on the National Survey of Adolescent Males, a nationally representative survey of 1,880 never married, non-institutionalized 15 to 19 year old U.S. men in 1988. The riskiest behaviors, such as IV drug use or homosexual intercourse, were relatively uncommon, Ku reported. Most risky behaviors were correlated with each other. Condom use was generally lower among groups with higher risks. Since HIV infection is based on multiple behaviors, Ku developed the Composite Risk Index model to roughly assess the risk of HIV infection in the past year. It incorporates behavioral data, including heterosexual, homosexual and IV drug use behaviors, and epidemiological parameters, such as infectivity and seroprevalence. According to Ku, the model yielded findings consistent with recent AIDS case reports. Risk behaviors were found to be higher in states with greater AIDS incidence rates.

About three-quarters of the teens had formal AIDS education, virtually all in school. Receipt of AIDS education, Ku found, was associated with (a) lower levels of risk, as measured by lower Composite Risk Indices; (b) less heterosexual intercourse; and (c) increased condom use. Higher age and being behind in school were found to lead to greater risk of HIV infection, and the effects of AIDS education were related to risk reduction in these

groups. While increased knowledge, level of worry or concern about AIDS were correlated with more condom use, Ku found that these factors were not correlated with the reductions in the risk indices or level of intercourse. Ku also found that having AIDS education more than a year before the interview was associated with lower risk in the past year.

The most important contribution of this research, according to Ku, are that it produced the first evidence that AIDS education, as practiced across the nation, reduces risky behaviors in adolescents with no adverse effects. This suggests the efficacy of prevention efforts in curbing a serious epidemic in a vulnerable group. Contributing towards effective education for ethnic adolescents from high-risk backgrounds was one of the major aims of the current study.

Barling and Moore (1990), investigating attitudes toward AIDS precautions of 370 15- and 16 year-old secondary school students, found that the students' attitudes reflected levels of apathy, denial, and confusion high enough for the authors to be concerned for this potentially high-risk group. One important finding showed that the subjects' intention to use condoms in future sexual encounters was inversely related to their degree of conflict and confusion about AIDS precautions.

Chapman et al. (1990) surveyed 408 people aged 15-35

years who reported having more than one sexual partner of the opposite sex in the past year or who thought it likely that they would do so in the next year about their sexual behavior, especially attitudes to condom use. The data revealed the emergence of three conceptually coherent factors that discriminated between condom users and non-users: (a) condom use as positive action; (b) condom use as a cue to embarrassment; and (c) condom use antithetical to good sex. The authors argued that these findings could serve as the basis for an educational program to encourage sexually active individuals to more frequently use condoms.

Cochran et al. (1990) argued that, while increasing attention has focused on the medical risk to young, unmarried, sexually active adults of contracting AIDS and sexually transmitted diseases (STDs) in general, little is known empirically about the extent to which this group perceives themselves to be at risk for contracting specific sexually-related diseases or has been changing their behaviors to reduce their risk.

In their article, Cochran et al. reported findings from their survey study of two matched samples of unmarried young adults, 182 assessed in the winter of 1986 and 182 in the fall of 1987. The results demonstrated greater worry and concerns about all STDs, including AIDS, in the second sample assessed than in the

first, suggesting that the passage of time was creating greater awareness and concern. Some behavioral changes also were noted in the second group compared to the first, including increased use of condoms. Nevertheless, 44 percent of the sexually experienced participants in the fall of 1987 reported that they had not changed their behavior in any way to reduce their risk of acquiring human immunodeficiency virus infection.

Doyle (1995) used questionnaire data to examine AIDS-related knowledge and attitudes and sexual behavior patterns among 84 deaf undergraduate students at Gallaudet University in Washington, DC. The findings from the study showed that the respondents had relatively high levels of general knowledge about AIDS. However, the high levels of AIDS knowledge -- and a reported moderate degree of comfort in discussing safe sex issues with sexual partners -- did not correlate with less risky sexual behaviors. Doyle felt that the results indicated that many of the students were likely placing themselves at risk for AIDS and other sexually-transmitted diseases.

Curtis et al. (1989) found from their survey study of 761 teenagers aged 15-17 years that 56 percent of both sexes had a steady or serious relationship. For about 40 percent of both sexes, intercourse was a part of this relationship. Almost all of the teenagers knew how AIDS is transmitted; only one third of them, however,

indicated personal concern about the epidemic, despite the fact that 80 percent of the subjects did not anticipate having a single monogamous relationship in the foreseeable future. Significantly, more girls than boys were planning to have fewer partners. Of those subjects not anticipating monogamy, three quarters mentioned that they had used condoms.

From the findings, the researchers concluded that, if education is to be effective in reducing the AIDS epidemic, it must be sufficiently relevant to create and maintain changes in life style and must also educate teenagers before they have established patterns of behavior.

Zimet, Sobo, Zimmerman, et al. (1995) drew on data collected via a self-report questionnaire to evaluate the sexual behaviors, drug use, and AIDS knowledge among Cleveland, Ohio runaways (N = 108). The findings from the study indicated variable rates of risky sexual behaviors, minimal illicit drug use, and high levels of knowledge about true behavioral risks for HIV infection. The runaways in this study demonstrated less frequent health-comprising sexual behavior and drug use compared to runaways described in other studies, according to the investigators, who cautioned that assumptions should not be made that all runaway youths engage in an unusually high rate of risky behaviors.

Franzini et al. (1990) conducted a study in which they employed behavioral techniques to teach assertive strategies designed to reduce the risk of contracting AIDS and to promote "safer-sex" behaviors. A total of 79 university students (38 male and 41 female) were included in the final data analysis. The subjects participated in three one-hour training sessions that included live modeling of assertive interactions, role-playing, behavior shaping, corrective feedback, verbal reinforcement, assertiveness training, and an AIDS education lecture. The important dependent measure in the study was a rating given by the subjects of the key components of assertive behavior from videotaped role-plays at pre- and posttests.

The findings showed that behavioral training had a positive effect on participants' assertive behavior. On the role-play rating, the experimental subjects were rated higher on overall assertiveness than the controls. Even brief behaviorally based educational interventions, the researchers concluded, can produce increases in assertive behaviors known to be related to AIDS prevention, for example, insisting on condom use and requesting information about a prospective partner's sexual and drug use histories.

Fullilove et al. (1990) focused their AIDS-related research efforts on crack cocaine users. This is because

crack cocaine, a smokeable form of cocaine hydrochloride, is widely available in American inner cities, and reports of high rates of unprotected sexual activity among crack users, coupled with reports of high rates of sexually transmitted diseases (STDs), raised fears that this population of drug users may soon be contracting and disseminating sexually transmitted HIV.

For the study, Fullilove et al. surveyed 101 black adolescent crack users in Oakland and San Francisco, California, who reported using crack in combination with sexual activity. Those respondents who reported having a history of one or more STDs were compared using discriminant analysis (DA). A successful discrimination using canonical correlation identified five variables that distinguished those with a STD history from those with no STD history: gender (being female), frequency of marijuana use, response to the question; "Do you plan for sex or does it just happen?", response to the statement, "I use drugs to get away from my problems," and response to the question, "Do you agree that sex doesn't feel as good when you use a condom?" The selection of these variables was thought by the researchers to represent an underlying passivity in way that crack users who combine crack use with sex approach sexual activity.

Hingson et al. (1990), in August 1988, surveyed 1,773 Massachusetts 16-19 year-olds by telephone using

anonymous random digit dialing. Using regression analysis, the researchers tested whether alcohol and drug use, perceived susceptibility to human immunodeficiency virus (HIV), severity of HIV if infected, perceived effectiveness of condoms in preventing infection, barriers to condom use, and behavioral cues such as exposure to media or personal communication about acquired immunodeficiency syndrome (AIDS) were independently related to condom use.

Among the sexually active respondents (who represented 61 percent of those interviewed) 31 percent reported always using condoms. Respondents who believed condoms were effective in preventing HIV transmission and worried they could get AIDS were 3.1 and 1.8 times, respectively, more likely to use condoms all the time. Respondents who carried condoms and who had discussed AIDS with a physician were 2.7 and 1.7 times, respectively, more likely to use them. Those who believed condoms do not reduce sexual pleasure and would not be embarrassed if asked to use them were 3.1 and 2.4 times, respectively, more likely to use condoms. Teenagers who averaged five or more drinks daily or used marijuana in the previous month were 2.8 and 1.9 times, respectively, less likely to use condoms. Among the respondents who drink and use drugs, 16 percent used condoms less often after drinking and 25 percent used

condoms less often after drug use.

Leslie-Harwit and Meheus (1989), after reviewing much literature about youth and STDs, including AIDS, concluded that young people are, or are becoming, more sexually active, and in most cultures sexually active young people are a high-risk group for STDs. The consequences of many of these STDs include permanent sterility, pelvic inflammatory disease, and death from AIDS. Evidence suggests that most young people are interested in learning about sexuality, and trends in Europe and North America suggest that adolescents will act responsibly if they are given sufficient, timely, relevant, and comprehensible information.

Lishner and Look (1990), after noting that sharing of needles by intravenous drug users is known to be one of the major means for the transmission of the HIV virus into the general population, studied methadone users in Seattle, where liberal laws make acquisition of needles relatively easy and it has been assumed that needle sharing is not a significant problem.

Specifically, the researchers reported that, based on a survey of 212 methadone maintenance clients, needle sharing is quite prevalent among intravenous drug users in the Seattle area and that addicts fail to sterilize their needles between uses. Clearly increased knowledge on the part of both health authorities and IV users was

needed in Seattle. Because the rate of HIV infection among Seattle's intravenous drug users was relatively low, the researchers urged immediate intervention efforts by public health authorities to prevent a rapid acceleration of the infection rate. Moore and Barling (1990) postulated that, among adolescents and young adults, the development of consistent and responsible attitudes with respect to AIDS precautions would follow a pattern similar to that of the development of a sense of identity. To test their hypothesis, late-adolescent trainee-teachers and nurses (n=262) were administered identity and intimacy measures and a questionnaire measuring attitudes toward and knowledge of AIDS prevention.

The results showed that attitudes were conceptually complex, with dimensions expressing the identity statuses of diffusion, foreclosure, moratorium, and achievement. Few relationships were found between AIDS attitudes and sex, measures of identity, or intimacy. However, attitudes toward AIDS precautions and identity status were predictive of future intention to use a condom. Intimacy level was negatively related to such an intention, suggesting that those in steady relationships may not recognize the need for AIDS protection.

Moran et al. (1990) analyzed data from a national probability sample of drug stores and found that condom

sales rose from 240 million annually in 1986 to 299 million in 1988. The greatest increase occurred in 1987 after the Surgeon General's report on AIDS was released. Sales of latex condoms with spermicide rose 116 percent. Sales of other types of condoms increased less. These data suggested to the researchers that Americans were using more condoms and probably more effective condoms in response to AIDS education.

Nemoto et al. (1990), in 1986, investigated risk behaviors for HIV infection in relationship to drug and sexual activities among 262 intravenous drug users (IVDUs) from methadone clinics in New York City using a structured questionnaire. The researchers found the overall seroprevalence rate to be 60.1 percent. Intravenous heroin and cocaine users were found to be significantly more likely to be HIV positive than those who used heroin and cocaine intranasally. Among female IVDUs, excluding prostitutes (defined by self-report as exchanging sex for money or drugs), the HIV positive participants reported higher numbers of sex partners than those participants who were HIV negative. The female IVDUs who reported prostitution during the last 12 months were less likely to be HIV positive than those who did not report prostitution. All males who reported passive anal and oral sex without using condoms during the last 12 months were found to be HIV positive. All female

prostitutes who reported use of condoms during the 12 months were found to be HIV negative.

From their findings, the researchers concluded, in part, that interventions in methadone maintenance programs should focus on the (a) IVDUs who are still using heroin, cocaine, and marijuana, (b) sexually active females, and (c) those IVDUs not using condoms (particularly among prostitutes).

Neubauer (1989) conducted a telephone survey with 400 adults to explore a possible relation between health risk-taking and perceived personal responsibility for health. Among other things, the researcher found that the attitude that AIDS could be avoided by being careful was weakly associated with responses to questions about wearing seat belts and smoking. The pattern held, however, only among those who thought their health status and dogmatism could contribute to denial of risk and to risky sexual behavior.

Rickert et al. (1989), stating that condom use is known to be generally unpopular among adolescent males but that adolescent females' beliefs about condom use are unclear, designed a study to assess specific health attitudes and behaviors related to condom purchase by adolescent females. Specifically, the researchers surveyed 99 adolescent females between 12 and 19 years of age (50 black, 49 white) who were attending a

comprehensive adult health clinic. The respondents were from low to middle socioeconomic backgrounds and 85 percent were sexually active. A 41-item survey was developed and focused on four areas: (a) comfort or embarrassment with menses, (b) basic knowledge of acquired immunodeficiency syndrome, (c) comfort in discussing contraception with a partner, and (d) risk of contracting AIDS.

Using chi-square analyses involving the four factors, the researchers determined that decreased embarrassment with menses was related to increased age, sexual activity, and comfort in discussing contraception with a partner. Increased risk of contracting AIDS was related to contraceptive use. Descriptive analyses showed that 62 percent of the sample reported that a fear of AIDS had influenced their contraceptive behavior, but only 17 percent of the females reported purchasing or using a condom to prevent AIDS transmission.

These findings suggested to the researchers that, although adolescent females have an awareness about AIDS, their behavior remained unchanged by this awareness.

Ross et al. (1989), believing that educational efforts to prevent the spread of AIDS require a combination of accurate information and the application of that information to personal behavior, developed a scale to evaluate the social and interpersonal skills of

adolescents in AIDS-related and non-AIDS-related interactions. The researcher-created instrument was administered to 101 Australian students in grades 10 and 11 of an urban high school.

The findings indicated that the adolescents' ratings of AIDS-related activities were not significantly different from their ratings of other social activities, and suggested that levels of comfort and assertiveness among adolescents in AIDS-related activities can be modified. The students felt most anxious about problems with sexually transmitted diseases or drug use, suggesting difficulty in dealing with the possible public disclosure of these stigmatized conditions. The data suggested to the researchers that both individual and group scores among adolescents may improve on following interventions to promote social and interpersonal skills designed to apply knowledge obtained from AIDS education.

Rotheram-Borus and Koopman (1991) reported that in 1988, runaways in New York City were found to have human immunodeficiency virus type 1 (HIV-1) seropositivity rate of 6.7 percent. To the researchers, this finding identified runaway youths as a high-risk group for HIV-1 infection, and they argued that to design effective prevention programs, more information was needed on the sexual risk behaviors of these youths. However, empirical data documenting their risk behaviors were

limited to a few items in epidemiological studies of runaways. The authors thus argued for more research on this specialized subgroup to facilitate the fight against AIDS.

Based on a survey, Forrest and Silverman (1989) reported that 93 percent of public school teachers in five specialties--Biology, Health Education, Home Economics, Physical Education, and School Nursing--who taught grades 7-12 said that their schools offered sex education or AIDS education in some form. Almost all the teachers believed that a wide range of topics related to the prevention of pregnancy, AIDS and other sexually transmitted diseases (STDs) should be taught in the public schools, and most believed these topics should be covered by grades 7-8 at the latest.

In practice, however, said the authors, sex education tends not to occur until the ninth or 10th grades. Moreover, there is often a gap between what teachers think should be taught and what actually is taught. Virtually all the teachers say, for example, that school sex education should cover sexual decision-making, abstinence and birth control methods, but only 82-84 percent of the teachers were in schools that provided instruction in these topics. The largest gap occurred in connection with sources of birth control methods: Ninety-seven percent of teachers said that sex

education classes should address where students can go to obtain a method, but only 48 percent were in schools where this was done.

Forty-five percent of teachers in the five specialties then-currently provided sex education in some form. The messages they most wanted to give to their students were responsibility regarding sexual relationships and parenthood, the importance of abstinence and ways of resisting pressures to become sexually active, and information about AIDS and other STDs. Among those who then-currently provided sex education, 90-96 percent covered AIDS, other STDs and sexual decision-making, and 83-89 percent covered abstinence, birth control methods, and factual aspects of abortion. Much smaller proportions (64-77%) dealt with homosexuality, "safer sex" practices, and ethical issues surrounding abortion; and only 52 percent provided information about sources of birth control.

Sex education teachers regarded pressure from parents, the community, or the school administration as the major problem they faced in providing sex education.

Other important problems reported by Forrest and Silverman were the lack of appropriate materials on the subject of AIDS, and students' reactions to or lack of interest about AIDS.

Proposed Solutions to the Spread of the AIDS Epidemic

In this section, articles that focus on programs, methods, and approaches for preventing the spread of AIDS, and related issues pertinent to the current study, are reviewed.

Stevenson, Gay, and Josar (1995) investigated the impact of culturally relevant human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) video education. The participants in the study were 194 African-American teenagers assigned to either a culturally sensitive or culturally dissimilar video education intervention. The findings from the study indicated that both interventions were effective in increasing AIDS knowledge scores; and an interaction effect was found between levels of perceived AIDS risk knowledge and participation in the culturally sensitive intervention (CSV). Only the CSV intervention was effective with adolescents who claimed to "know a lot" about AIDS. The teenage students in both conditions who were worried about getting AIDS demonstrated higher AIDS risk knowledge at post-assessment. According to the investigators, this study provides further evidence of within-ethnicity diversity among African-American youth and for developing culture- & subgroup-specific HIV/AIDS education.

In an earlier study of the effect of an AIDS video

on knowledge, Stevenson and Davis (1994) ascertained the impact of a culturally similar AIDS video on the acquisition of AIDS knowledge and endorsement of HIV/AIDS prevention beliefs. In eight classes, 121 African American adolescents were assigned to one of two AIDS education groups: culturally similar video (CSV) group (experimental group) and culturally dissimilar video (CDV) group (control group). The findings showed that the participants were more receptive to culturally sensitive information without perceiving it as less distressful or less serious; that the CSV group demonstrated significant improvement in pre- to post-AIDS knowledge scores compared with the CDV group; and that the intervention was not significant in demonstrating change in beliefs about prevention. Based on the findings, the investigators suggested that future research should examine the influence of culture in learning about AIDS and develop educational strategies that have the potential to increase the salience of the HIV/AIDS prevention message.

Carter, Jalloh, and Grenz (1990) reported that the Forsyth County (North Carolina) Health Department's Health Education Division developed a community-based AIDS outreach program for Hispanic migrants with positive results. The Migrant/Hispanic Center in Kernersville, North Carolina operated under the auspice of the Catholic

Diocese of Charlotte and provided services to Hispanic migrants. The Center agreed to cooperate in the development and implementation of the program. Members of the Migrant/Hispanic Advisory Council and the church congregation participated in the planning, using volunteer community members as translators. Migrants explained that previous agencies offering similar services did not involve the migrants in planning, and therefore the programs did not last. Among the objectives of the program were: (1) to conduct a comprehensive ongoing series of health education sessions with teens and adults, and (2) to increase the awareness of the spread of AIDS/HIV infection among the Hispanic population and encourage alternatives to risk-taking behaviors.

According to Millstein (1990), during adolescence young people move from the more protected experience of childhood into a period of extremely rapid physical, psychological, and social change. A successful transition into adulthood requires that the adolescent develop and practice new social skills, redefine and negotiate his or her place in the family, move toward adult decision making and self-determination, and develop more mature patterns of interpersonal intimacy. Unfortunately, contemporary adolescents are making decisions that can have life-threatening implications.

Substance use and sexual experimentation may serve to fulfill normal developmental needs, but they can have dire consequences. Millstein argued that, like adults, adolescents significantly underestimate risk levels in their assessments of personal vulnerability to harm. One of the important tasks that preventive efforts may need to address, therefore, is how to convince these young people that they are indeed vulnerable, while not raising their fear to levels that encourage denial, inhibit preventive actions, or negatively affect healthy sexual development.

According to Millstein, surveys have indicated that adolescents worry about contracting AIDS but are often ill-informed about specific preventive measures they can take (DiClemete, Boyer, & Morales, 1988; Strunin, & Hingston, 1987). The very groups at greatest risk for AIDS, minority youth in high-poverty areas, also have the greatest misconceptions and least knowledge about contracting AIDS and preventive measures (DiClemete, Boyer, & Morales, 1988; Reuben, Hein, Drucker, Bauman, & Lauby, 1988).

The need for attention to adolescents is compelling. Preventive education is the only strategy currently available to combat the further spread of the virus, according to Millstein. Reaching the adolescent population, especially those at highest risk, will

require the involvement of many different sectors of society, including parents, schools, churches, and community and voluntary associations. Knowledge about adolescent development and effective or promising approaches to changing adolescent behavior must be the foundation of such efforts. Unfortunately, however, argued Millstein, the lack of information about adolescent sexual practices and how they vary across different racial, ethnic, and geographical groups makes it difficult to assess the degree of risk exposure for non-drug-using, heterosexual adolescents in low-risk geographical areas. This lack of information places severe limitations on the ability of those concerned to design effective prevention strategies for the adolescent population as a whole.

Breakwell, Millward, and Fife-Schaw (1994) explored the AIDS risk reduction model (ARRM) in a prospective study of adolescent condom use among 63 London adolescents between 16 and 20 years of age. This three-stage model characterizes the social and psychological facilitation of change in attitudes and sexual behaviors related to HIV transmission. The social and behavioral consequences of AIDS for the 63 adolescents were mapped over a one-year period. The investigators created indices that reflected labeling of a high risk behavior as problematic, commitment to

change, and seeking and enacting appropriate solutions, and the interrelationship between significant social and psychological predictors and behavior at Time 1 and Time 2 were assessed. The findings showed that the model accounted for 30 percent of the variance in condom use. According to the investigators, based on analysis of the data, it appeared that social representations that embody normative and value considerations underlie commitment to safer sex and override intentions in the explanation of prospective behavior.

According to Flora and Thoresen (1988), the most important consideration for AIDS prevention programs aimed at adolescents is that they should use an expanded cognitive-social learning theory perspective. In addition, the authors argued that prevention programs should (a) consider level of intervention and the unit of analysis (e.g., individuals, networks, organizations, and communities), (b) recognize differing goals of primary and secondary prevention, and (c) use social marketing methods in tailoring programs to subgroups. In particular, Flora and Thoresen claimed that prevention programs are urgently needed that influence diverse populations--e.g., men and women, Blacks and Hispanics; and that effective AIDS prevention programs and research must draw from promising programs in other health areas, such as smoking prevention and prevention of teenage

pregnancy.

Hogan (1994) proposed an educational strategy for AIDS prevention, to be used among inmates in prisons, after pointing out that correctional policy has recently been expanded to focus on HIV/AIDS education interventions that not only benefit the institution, but also benefit society as a whole. According to Hogan, the elements of an effective educational strategy include the following: looking at educational paradigms; providing an in-depth understanding of different forms of risky behavior; uncovering everyday interpretation within racial, cultural, and gender frameworks; and choosing the most effective communication models for the inmate population.

Spigner (1990) claimed that understanding AIDS-related behavior in Black communities is a complex task, and could not be understood through any single theory. As a result, Spigner proposed that three distinct social theories be employed to understand AIDS in Black communities: conflict theory, to examine economic stratification; functionalist theory, to discuss social dysfunction and marginality; and interactionist theory, to discuss deviance and labeling. To help combat AIDS, Spigner recommended the use of political empowerment, role models, coalitions and networks, and race-specific health education.

Kelly et al. (1989) stressed that efforts to curtail the spread of AIDS should emphasize changing risk practices, and that an objective measure of practical knowledge about AIDS risk behaviors can permit the more accurate assessment of the impact of such prevention programs. The researchers' paper--which in part described the construction and testing of a standardized 40-item test of AIDS risk behavior knowledge--argued that knowledge scores of risk behavior may serve as a useful dependent measure when evaluating the impact of applied or experimental AIDS prevention programs, especially with groups at potential risk for the syndrome.

Remafedi (1988) argued that, in order to be effective, the national effort to contain the spread of AIDS must include a youth focus. Knowledge from studies of adolescent sexual behavior, drug use, and sexually transmitted diseases has suggested that many adolescents are in jeopardy of acquiring human immunodeficiency virus (HIV) infections; and they are among those most likely to benefit from preventative efforts as they explore adult roles and lifestyles. According to Remafedi, preventative education should particularly target gay and other homosexually active young men. Effective teaching uses a variety of approaches and media, both inside and outside the classroom. Learning about AIDS is most likely to affect behavioral change when accompanied by

other programs to build social supports, self-esteem, and positive identity. The ethical and rational use of HIV antibody testing may be a helpful adjunct to education for certain adolescents. Ultimately, argued Remafedi, our society's ability to address complex, associated social issues will determine our ability to control AIDS.

Allen and Curran (1988) argued that, although the primary epidemiology of AIDS has been described, much work remains to be done to complete scientific understanding of the dynamics of transmission and infection with the causative virus, HIV. At the state and local level, the highest priorities for epidemiologic research, the authors argued, are to understand better the precise populations at risk of prevalent and incident HIV infection, and to use this information to direct and monitor specific prevention programs that are likely to be effective for the populations at risk. These parallel efforts--sophisticated investigative epidemiologic research and applied epidemiologic and surveillance studies--must be expanded rapidly and continued for the foreseeable future if society is to accomplish the goal of preventing further spread of HIV.

Allensworth and Symons (1989) claimed that to develop effective school-based programs to prevent the spread of AIDS, programmers must apply principles related to learning and behavior change. Due to the complexity

of influencing contemporary adolescent sexual behavior, a multidisciplinary approach using multiple intervention strategies is essential. Health promotion efforts should include policy mandates, direct intervention, instruction, environmental support, media, role modeling, and social support. Consistent, continuous messages through multiple channels (school, home, community, and media) and by multiple agents (parents, peers, and health and education professionals) need to be provided.

Boyer and Kegeles (1991) argued that, although relatively few teenagers have been diagnosed with AIDS and the extent of HIV infection among adolescents remains largely unknown, there is cause for concern about teenagers' risk of contracting HIV disease. This is because the incubation period (the time from initial infection to the development of full-blown AIDS) is estimated to average eight years, and therefore it is probable that most of the individuals in their twenties who have AIDS (20 percent of all the people with AIDS) contracted HIV during their teenage years. The sexual and drug use activities of many teenagers place them at increased risk for HIV transmission. Sexually transmitted diseases (STDs) are pervasive and a major cause of morbidity among sexually active adolescents. The rates of STDs have continued to rise even during the "age of AIDS". These rates are of concern since the

behaviors associated with the acquisition and transmission of STDs are also the behaviors associated with HIV transmission.

In addition, the authors argued, the presence of STDs may increase the likelihood of HIV transmission. Although condoms reduce the risk of HIV transmission, their use remains low among sexually active teenagers. Reducing or eliminating high risk behaviors is the only way to limit further spread of HIV. Effective prevention programs should be based on models and theories of risk behavior so that the programs can be designed to change those factors which lead to the undesirable risky behaviors. The authors present the AIDS Risk Reduction Model (ARRM) as an example of such a social-physiological model. The ARRM model characterizes why people persist in engaging in high risk activities or make efforts to alter those activities. The three stages theorized to be necessary to reduce risky sexual activities are: (a) recognizing that one's activities make oneself vulnerable to contracting HIV; (b) making the decision to alter risky sexual behaviors and committing to that decision; (c) overcoming barriers to enacting the decision, including problems in sexual communication and seeking help when necessary to learn strategies to reduce risky behaviors. Each stage includes a number of constructs identified in prior

research as important for engaging in "healthy" or low risk behaviors.

According to Boyer and Kegeles, innovative strategies must be developed and implemented to reach all adolescents, ranging from teenagers who attend school and live with their families to those teens who are runaways, live in detention facilities or are otherwise "disenfranchised." To be most effective, HIV prevention programs must utilize strategies that combine cognitive and behavioral skills training. These programs must be designed to be age-appropriate and sensitive to cultural values, religious beliefs, sex roles, and customs within adolescent groups. In addition, these programs should utilize a variety of communication strategies, and importantly, be evaluated for their effectiveness in preventing and reducing HIV risk behavior.

Brandt (1988) claimed that history had taught certain "lessons" about AIDS that everyone should heed. Lesson 1 is that fear of disease will powerfully influence medical approaches and public health policy; lesson 2 is that education will not control the AIDS epidemic; lesson 3 is that compulsory public health measures will not control the epidemic; and lesson 4 is that the development of effective treatments and vaccines will not immediately or easily end the AIDS epidemic.

As these historical lessons make clear, argued

Brandt, in the context of fear surrounding the epidemic (lesson 1), the principal proposals for eradicating AIDS (lessons 2-4) are unlikely to be effective, at least in the immediate future. These lessons should not imply, however, that nothing will work; they make evident that no single avenue is likely to lead to success. Moreover, they suggest that in considering any intervention, we will require sophisticated research to understand its potential impact on the epidemic. While education, testing, and biomedical research all offer some hope, in each instance we will need to fully consider their particular effectiveness as measures to control disease.

Simple answers based upon historical precedents, Brandt added, are unlikely to alleviate the AIDS crisis. History does, however, point to a range of variables that require attention if the crisis is to be effectively addressed. Any successful approach to the epidemic, insisted Brandt, will require a full recognition of the important social, cultural, and biological aspects of AIDS. A public health priority will be to discern those programs likely to have a beneficial impact from those with considerable political and cultural appeal, but unlikely to positively affect the course of the epidemic. Only in this way will society be able to devise effective and humane public policies.

According to the Citizens Commission of AIDS for New

York City and Northern New Jersey (1991), there are 10 "myths" that need to be revealed about the AIDS crisis before it can be successfully dealt with. Myth 1 is that continued AIDS public education is not necessary because everyone already knows how HIV is and is not transmitted; Myth 2 is that public service announcements have saturated the media with AIDS information; Myth 3 is that AIDS education for heterosexuals is not necessary because AIDS is not spreading beyond the gay or drug-using communities; Myth 4 is that AIDS education in schools is difficult to introduce because so many parents object to it; Myth 5 is that if AIDS instruction is provided in the schools, adolescents will not need any additional education; Myth 6 is that continued AIDS education for gay men is not necessary because they have all adopted "safer sex" practices; Myth 7 is that AIDS education for drug users is a waste of time and money because they are unconcerned about their health and unable to change their behavior; Myth 8 is that continued AIDS education for blood donors is not necessary because everyone knows who should and should not donate blood; Myth 9 is that if people are given accurate information, they will change their attitudes and behavior towards AIDS; and Myth 10 is that fear of death is the most effective motivator in changing behavior towards AIDS.

If these Myths are abandoned and reality substituted in their place, then a realistic approach to combatting the AIDS epidemic can be conceived and implemented, according to the Commission.

Addressing the population of direct concern to the current study, Gelber (1988) argued that there is no place better situated for AIDS testing/screening, counseling, and education than a juvenile detention center, and thus resources should be poured into such institutions. What has existed in the past, according to Gelber, have been at best a token acknowledgment of the problem. Housing for adolescents, for example, has been totally ignored. Leaders in the health fields, as well as in politics, must recognize that detention centers present a major opportunity to reach high-risk youths. Testing and screening procedures need to be reappraised and the numbers of those tested increased considerably. AIDS counseling must be a major element of such an effort, with special counselors available on the premises and for follow-up services once the child leaves the detention center. Screening and counseling staff must be enlarged so that adequate attention may be devoted to this problem.

Gelber stressed that health authorities cannot overlook this age group because the number afflicted is so small. As testing is increased, the number of ARC

patients identified will multiply. It is folly not to be prepared. The magnitude of this crisis, argued Gelber, demands an aggressive, not a cursory, approach. Data need to be collected and analyzed to determine what best impacts on the young. The same errors made in the past in dealing with juveniles cannot be repeated. Our national tendency has always been to deal with the hard-core, violent delinquent when it is too late. Regularly, "war" is declared on drug merchants, but drug treatment for adolescents is ignored. Here we are again, claimed Gelber, posed to ignore the very group needing the most attention. If AIDS calls for a declaration of "war," then certainly the front line combatants are the groups held in juvenile detention centers throughout the nation.

Because the most vulnerable target population is within our detention centers, penal institutions and residential programs, argued Gelber, it would be shameful not to concentrate maximum effort on groups most likely to suffer, and most prone to transmit, AIDS. It is essential that each of these institutions have a formal response plan, capable of regular assessment.

According to Greig and Raphael (1989), AIDS brings a new dimension to the life of the adolescent population. Where their parents' generation experienced, and might reasonably have expected, freedom for social experimentation, this is no longer safely the case.

Adolescents as a generation will have to learn to live with the reality of AIDS. Those who are warning them of the dangers have "had their fun" and freedom. Anger and resentment at the strictures and threat that an acknowledgement of the reality of AIDS must arouse, will undoubtedly influence how and when adolescents respond to the message of HIV risk. Any programs aimed at helping them with this, claimed Greig and Raphael, must acknowledge the social realities for this cohort.

It is apparent that the majority of the population are aware that AIDS is a fatal disease without a cure in sight, the authors continued to argue. The role of education now is to reinforce among adolescents their knowledge on the agency of this disease, its methods of transmission and, importantly, how it is not transmitted. They need to have a sense of control over whether or not they become infected and know that much of their current sexual behavior and drug use is placing them at risk of HIV infection. Although such knowledge has never been easy to impress upon adolescents, the various promising strategies available must be tried and evaluated. To do otherwise invites the tragedy currently afflicting the gay community.

Hardy (1987) claimed that, from his experience, a two-pronged approach can be effective in dealing with the AIDS epidemic. This includes, for one thing, a broadly

based sexuality education program in the schools stressing the provision of needed information, in a caring environment. This type of program, by encouraging goal setting, personal responsibility, and wise decision making, will lead to more responsible sexual behavior and result in a delay in the onset of sexual activity and a reduction in school-age pregnancies, Hardy argued. In addition, because of the danger introduced by AIDS, even more emphasis should be placed on abstinence, monogamy, and the proper use of condoms.

The second approach Hardy promoted was intended for those teenagers who decide to continue engaging in sex or who begin to become sexually active. For them, confidential family planning services accompanied by individual education must be readily available. For many young people, claimed Hardy, these services must be accessible and free because poor teenagers lack funds to pay for these services.

Such a program will help prevent unintended pregnancies as well as STDs, according to the author. It is the major recourse in the control of the AIDS epidemic. Education is the best avenue of prevention.

Krieger and Lashof (1988) pointed out that current debates concerning appropriate policy to combat the epidemic of AIDS have raised questions regarding the role that schools of public health and individual public

health professionals should play, if any, in AIDS-related policy analysis and social advocacy. In discussing this issue, the authors recounted how, in the summer of 1986, the School of Public Health at the University of California at Berkeley initiated a telegram sent by the Deans of all 23 schools of public health to protest US Department of Justice AIDS policy; and how, in the subsequent fall, the school expanded its public educational role in an unprecedented manner by initiating and issuing, with California's other three schools of public health, a policy analysis of Proposition 64, the LaRouche AIDS Quarantine Initiative. That analysis exposed the Proposition's fallacious claims regarding casual transmission of AIDS and served to educate the electorate on the likely public health impact of that deleterious legislation.

Based on those experiences, and in light of ongoing national controversy regarding AIDS, the authors concluded with their belief that schools of public health have an important role to play in policy analysis, and individual public health professionals have a role to play in social advocacy.

According to McLean and Farmer (1988), preventive counseling and anticipatory guidance for adolescents can have life-long effects by preventing unintended pregnancies, STD, and the potentially fatal AIDS

infection. Because adolescents are, according to the authors, particularly vulnerable to sexually transmitted diseases, it is very important for clinicians caring for adolescents to become comfortable in discussing sexual behaviors and in managing STD. With increased identification and counseling of adolescents at risk, the incidence of sexually transmitted diseases should be able to be lowered in adolescents.

Physicians who treat adolescents, the authors claimed, are increasingly aware that sexual experimentation is widespread throughout all races, cultures, and socioeconomic classes. Thus, good medical practice requires a complete sexual history, particularly when this history has not previously been obtained.

Physicians need to be aware of the behavioral and biologic factors that may increase a teenager's risk of STD. Risk behaviors should be explored with the patient, particularly as they relate to the risk of HIV transmission. Most important, said the authors, the physician should address the counseling and educational needs of the adolescent. Sexuality counseling is an ongoing process that can be provided to adolescents at each office visit. Physicians need only to be open to discussing sexuality and be prepared to evaluate adolescents as necessary for the existence of STD, including the AIDS virus.

Rolf et al. (1991) stated that in the United States, there is growing concern that adolescents are at increasing risk for HIV-1 infection due to recreational substance abuse and sexual activity. Indeed, the researchers reported data from self-report questionnaires administered to a sample of 224 incarcerated delinquents that showed associations between drug use, sex, and other, related, behaviors. Also, high rates of substance use and HIV risk behaviors were found. Significant correlations between levels of substance use and both behavioral and attitudinal barriers to HIV/AIDS prevention programming were observed. This evidence and other subgroup differences in denial of vulnerability and in practice of preventive behaviors indicate the need for different approaches to prevention. An integrated HIV/AIDS and substance misuse prevention program is discussed as a viable alternative to the usual knowledge-enhancing programs. [Translations are provided in the International Abstracts section of this issue].

Wilcox (1990) argued that adolescent AIDS policy in the United States has been piecemeal at best. While funding for preventive education programs has been extensive and growing, the effort has remained largely uncoordinated and chaotic despite the best efforts of the Centers for Disease Control (CDC). The public health system, like the educational system, is highly

decentralized; state and county health officials have considerable authority over state and local public health programs. According to Wilcox, adolescent AIDS health policy has been essentially nonexistent. Aside from the usual sources of funding and services, such as Medicaid and the Maternal and Child Health block grant, there has been little recognition of the special problems confronting this population.

In addition, the author goes on to argue, it has been particularly difficult to mobilize resources on behalf of adolescents, particularly those who are gay, live on the streets, or are intravenous drug users. Sadly, the nation seems incapable of recognizing the gravity of the threat posed by adolescent AIDS and HIV infection until the number of victims becomes overwhelming, as is the case now with adult AIDS.

Rosenberg and Weiner (1988) pointed out that, with increasing competition for resources, health departments were faced, in the mid-1980s, with the question of whether to target female prostitutes as a high priority component of AIDS prevention strategy. Prostitutes were, and are still, considered to be a reservoir for transmission of certain sexually transmitted diseases (STDs). However, according to the authors, a variety of studies suggested that HIV infection in prostitutes follows a different pattern than that for STDs: HIV

infection in non-drug using prostitutes tends to be low or absent, implying that sexual activity alone does not place them at high risk, while prostitutes who use intravenous drugs are far more likely to be infected with HIV. Emerging data from heterosexual groups, the authors reported, similarly suggested a low rate of heterosexual transmission, particularly from women to men. Prostitutes who do not use intravenous drugs probably face their highest risk from steady partners who may be infected with HIV and other STDs and with whom barrier protection is generally not used.

Nevertheless, Rosenberg and Weiner concluded, there are two good reasons for health departments to place high priority on prevention efforts directed to prostitutes: (a) prostitutes often have other risky behaviors such as drug use; and (b) prostitutes are reachable, being a group which is already in the health care system administered by health departments.

Schilling et al. (1989) reported that more than 8 out of 10 intravenous drug users infected with HIV are black or Hispanic. Recognizing that sociocultural factors affect HIV transmission, public health officials have called for interventions designed for ethnic-racial minority groups. Given this, the authors considered in their paper the nature and extent of AIDS among ethnic-racial minorities and the cultural aspects of drug use

and sexual behavior related to HIV transmission.

According to the authors, drug users had begun to practice safer needle use but they had not apparently changed their sexual behavior. Federal agencies, calling for rapid advances in knowledge and expanded efforts in intervention, had instituted numerous programs to support innovative research and demonstration projects in ethnic-racial minority communities, but they had not paid attention to studies that (a) describe the phenomena of drug use and sexual behavior among ethnic-racial minority populations, (b) establish the efficacy of culturally specific AIDS prevention strategies in drug treatment and community settings, and (c) demonstrate new ways of recruiting, treating, and reducing relapse among drug users. These types of programs are badly needed, however, in the attempt to stop the spread of AIDS, according to the authors.

Summary

Many researchers have conducted studies of knowledge of AIDS, including among adolescents, with varying findings. In general, researchers have found adolescents to have at least some accurate knowledge of AIDS, though often adolescents hold misconceptions about how AIDS, especially how HIV is transmitted. Unlike the current study, none of the research studies reviewed assessed

knowledge of AIDS among incarcerated youth or looked at knowledge involving transmission of HIV separately from other knowledge about other aspects of AIDS. Most important in terms of looking at the current study in terms of past research, the current study is the only one, to the authors' knowledge, that attempts to describe variations in knowledge as a function of behavioral and family background variables.

The research studies reviewed that involved sexual behavior among adolescents and other populations showed that the subjects often do not translate their knowledge about the transmission of HIV into practice, especially by wearing condoms. It is for this reason that several researchers argued that knowledge itself cannot stop the spread of AIDS. Research which showed that subjects do sometimes, however, adopt "safe sex" measures provides hope that knowledge can, at least among some individuals, help to prevent the spread of AIDS. In addition to knowledge, however, several researchers pointed out that subjects' attitudes and levels of concern about AIDS, among other subjective factors, can strongly influence their AIDS-related risk-taking behaviors.

The current study, among other things, has attempted to empirically correlate subjects' AIDS-related sexual and drug behaviors to their knowledge levels about AIDS, and thus to add to the relatively sparse body of facts

concerning this relationship.

The idea that knowledge in itself can help to prevent the spread of AIDS has been promoted by many authors, reviewed in the final section. Based on this belief, they have proposed programs that are knowledge-based, almost to the exclusion of any other factors, including changing behaviors, attitudes, and perceptions. Although some strategies that stress changes in these latter areas exist, especially behavior-change programs, they relatively rare in the literature.

In the Conclusions chapter of the dissertation, based in part on findings from the current study, the researcher will reassess the role of knowledge in AIDS prevention strategies aimed at adolescents and propose suggestions for future research suggested by the current study.

Chapter III

Research Methods

In this chapter, the research methods used to conduct the study are discussed, including the following topics: the sample and sampling procedure, the research instrument to be used to collect the data, the "independent" and "dependent" variables in the study, the procedure to be employed for collecting the data, the hypotheses of the study, and the statistics used to analyze the data collected.

The Sample

The sample of subjects to whom the research instrument was administered consisted of 230 boys and girls of various ethnic, religious and racial groups, most of them between 13 and 18 years of age, who were incarcerated in the Los Padrinos Juvenile Hall (LPJH), in Downey, California during 1991.

The Juvenile Hall, which is part of the L. A. County Office of Education, is essentially a holding facility for youth who have been picked up and booked by the police. They may be kept at the facility from a day to several years, depending on the circumstances of their case.

At any given time, there is an average of

approximately 700 youth at LPJH, with a range of about 500 to 900. Thus, the sample from whom data were collected constituted about one-third of the population. Youth from all levels of the school groups, which are based on their reading scores, were obtained for the study. Because of this and the large number of subjects to be investigated, the sample studied was deemed representative of the population in the Juvenile Hall. Findings from the study were considered generalizable to youth in other facilities, in other venues, and in the population in general who have socio-demographic characteristics similar to those of the subjects.

The Research Instrument

The research questionnaire to collect information about subjects' knowledge and awareness of AIDS was adapted by the researcher from the "National Health Interview Survey" (NHIS) instrument created by the U. S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Center for Health Statistics, titled "AIDS Knowledge and Attitudes for July--September 1990" (see Appendix A). Most of the items presented forced-choice answers, and some asked for write-in answers.

The demographic questionnaire items were created by the researcher and were primarily designed to collect

information from the subjects about the following: (a) their biological characteristics (sex, race, age, etc.), (b) parental-household living situation; (c) parental education and work background; (d) religion; (e) drug-related behaviors; (f) sexual behaviors; (g) needle-related behaviors (e.g., for tattoos, drug abuse, blood transfusions); (h) gang-related behaviors; and (i) knowledge about AIDS, especially how it is transmitted and the effect of the AIDS virus on the body.

Validity and Reliability of the Research Instrument

The literature accompanying the source instrument (see Appendix B), from which the researcher's questions came, describe the procedure used to validate the instrument as follows:

> The NHIS [National Health Interview Survey] AIDS questionnaires were developed by the National Center for Health Statistics and an interagency task force created by the Public Health Service Data Policy Committee. The task force included representatives from the Centers for Disease Control; Office of the Assistant Secretary for Health; National AIDS Program Office; National Institutes of Health; Alcohol, Drug Abuse and Mental Health Administration; Food and Drug Administration; and the Health Resources and Services Administration (p. 1).

The participation of these experts concerned with health and drugs, fom various branches of the Government, in the development of the NHIS instrument on "AIDS Knowledge and Attitudes," established that the instrument is valid, i.e., that it measures what it is purported to measure, namely, knowledge and attitudes about AIDS.

The reliability of the NHIS questionnaire was apparently not established, judging by its absence from the literature accompanying the survey instrument (see Appendix B). As a result of the instrument's development by noted experts and use by the U. S. Department of Health and Human Services, and because it has been employed since 1987, and revised several times, to acquire accurate knowledge from the American population about AIDS, the instrument was assumed by the researcher, for purposes of the current study, to meet the basic criteria of reliability.

Procedure

The survey instrument was administered to each subject in a classroom setting. The average time for a subject to complete the instrument was about one hour. Any questionnaire items that were not clear were explained to the subjects, until there was understanding of the question. A pilot study established the comprehensibility of the instrument.

The Variables Analyzed for the Study

AIDS-Related Knowledge and Awareness

In this dissertation, the questionnaire included two separate tests of AIDS-related knowledge. On the first test--a general knowledge test--the subjects were presented with nine statements about AIDS and were asked to indicate whether it was "Definitely true," "Probably true," "Probably false," "Definitely false," or "Don't know." For each statement, the researcher determined which answer was correct or incorrect. Examples of statements composing the first knowledge test are: "AIDS is an infectious disease caused by a virus;" "A pregnant woman who has the AIDS virus can give it to her baby;" and "There is a vaccine available to the public that protects a person from getting the AIDS virus." The highest score a person could obtain on this test was 9, for answering every question correctly.

The second test focused exclusively on knowledge of how the AIDS virus is transmitted, and was referred to as the AIDS awareness test. It is composed of eight statements. For each statement, the subject was to answer "Very likely," "Somewhat likely," "Somewhat unlikely," "Very unlikely," "Definitely not possible," or "Don't know."

The statements were preceded by the following: "How

likely do you think it is that a person will get AIDS or the AIDS virus infection from..." Examples of questions which followed are, "Working near someone with the AIDS virus?" " Using public toilets?" and ""Being coughed or sneezed on by someone who has the AIDS virus?" The highest score a subject could attain on this test was 8, for answering every question correctly.

The total score for each subject on the above tests were analyzed in terms of the other variables on the questionnaire.

Behavioral and Demographic Variables

The other variables studied were behavioral and demographic. They were grouped into such categories as "ethnicity," "sexual behaviors," "demographic characteristics," and "use of needles," among others. The following are extensive examples of variables that were analyzed in relationship to the subjects' knowledge and awareness about AIDS.

Ethnicity

1. Whether the subject considers him- or herself White, Black, Hispanic, or other

Religion

1. Religious affiliation

Residential/Parental Factors

2. Who the subject lives with

3. Frequency of the subject's contact with father and mother

4. Employment status of the subject's father and mother

5. Type of employment of the subject's father and mother

6. Educational background of the subject's father and mother

7. Subject's parental status

8. Number of children the subject has

Educational Factors

9. Last grade in school the subject completed

10. School group the subject is in at Los Padrinos

11. School attendance of the subject when not incarcerated

12. Whether the subject ever received migrant education instruction

13. Whether the subject ever attended a preschool/ headstart program

14. Whether the subject ever received sex education or AIDS education instruction

Media Behavior

15. Whether the subject keeps up with the news and in what manner

Crime and Gang Related Factors

16. Length of time the subject has been incarcerated (current)

17. Type of crime the subject was last arrested for

18. Whether the crime the subject was last arrested for was gang-related

19. Number of times the subject was previously arrested

20. Number of times the subject was previously incarcerated

21. Whether the subject is a gang member

22. Age at which the subject became a gang member

23. Whether the subject engages in violent gang activities ("bangs")

Drug Related Factors

24. How often the subject abuses alcohol

25. How often the subject uses various types of drugs, e.g., crack, cocaine, I.V. drugs

Use of Needles for Tattoos/Body Piercings

26. Number of tattoos/body piercings subject has

27. Where subject had tattoos/body piercings done

28. Whether the needle used for tattoos/body piercing was new

29. Whether a non-new needle for tattoos/body piercing was cleaned with bleach while the subject watched

Use of Needles for Drug Taking

30. How many times the subject shared an IV needle

31. Whether the subject took drugs by needle at any time since 1977

Sexual Behaviors

32. Number of lifetime partners the subject has had

33. Number of rectal sex partners the subject has had

34. Number of times the subject had sex with a male or female prostitute

35. How often the subject uses a condom for oral sex, vaginal sex, or anal sex

36. Type of condom the subject uses

37. Whether the subject ever had sex with an IV drug user

38. Whether the subject used a condom when he or she had sex with an IV drug user

39. Number of times the subject had a sexually transmitted disease

40. Whether the subject has had sex with another man at any time since 1977

41. Whether the subject has, since 1977, been the sex partner of any person either with hemophilia, or from Haiti or Central or East Africa, or who has taken illegal drugs by needle

42. Whether the subject exchanged sex for drugs and/or alcohol or vice versa

Hypotheses

The hypotheses tested in the study were the following:

Hypothesis I: There is a relationship between the subjects' general knowledge of AIDS (knowledge test 1, or the general knowledge test) and each of the behavioral and demographic variables in the study.

Hypothesis II: There is a relationship between the subjects' knowledge of how AIDS is transmitted (knowledge test 2, or the awareness test) and each of the behavioral and demographic variables in the study.

Data Analysis

Both descriptive and inferential statistics were used to analyze the data. The descriptive statistics, which were used primarily to describe the demographic characteristics of the sample, included the arithmetic mean, median, mode, variance, standard deviation, range, frequencies, and percentages.

The inferential statistics were used to test the hypotheses of the study. These included the t-test for the difference between means of independent samples, one-way and two-way analysis of variance, and simple and multiple correlation and regression.

Chapter IV

Findings

In this chapter, the results from the data analysis are presented. The background characteristics of the sample are presented in the first section; tests of the hypotheses are presented in the second section; and post hoc analyses of variance involving selected variables are presented in the third section.

Statistics used to test the hypotheses include the Pearson product-moment correlation coefficient (Pearson "r"), the t-test for the difference between means of independent samples, and one- and two-way analyses of variance. For analyses involving tests of statistical significance, results are presented only for findings where alpha=.05 or less.

Background Characteristics of the Sample

In this section, the 230 subjects studied are described in terms of the following characteristics: age, ethnicity, religion, sex, education, marital status, and length of time in prison.

Sex

The sample included 176 (76.5%) males and 53 (23.0%) females. One subject did not answer this question.

Age

For the 225 subjects who provided age data (there were five missing cases), the mean age was 16.28 years (s.d.=1.49 years), the median age was 16.50 years, and the modal age was 17.75 years (n=11). The range was 8.83 years, with the youngest subject being 9.92 years and the oldest subject being 18.75 years.

Racial Background

Table 2 shows the frequency distribution for the respective racial backgrounds of the subjects.

Table 2

Frequency Distribution for Racial Background

Racial Background	Frequency	Percentage
White	18	7.8
Black	73	31.7
Hispanic-Mexican	55	23.9
Hispanic-Central American	9	3.9
Pacific Islander	7	3.0
Hispanic	6	2.6
Black Hispanic-Central America	5	2.2
Vietnamese	6	2.6
Other	51	22.2
TOTAL	230	100.0

As can be seen in the table, for specific racial categories listed, the modal category is Black (73), followed by Hispanic-Mexican (55), and White (18). The "Other" category is composed of racial backgrounds that had a frequency of five or less, including Japanese, Chinese, Cambodian, Thai, Korean, Hispanic-South American, Hispanic-Spanish, Hispanic-Caribbean Islander, White Hispanic-Mexican, White Hispanic-South American, Black Hispanic Only, Black Hispanic-Mexican, and Black Hispanic-South American.

Ethnic Background

Table 3 shows the frequency distribution for the respective ethnic backgrounds of the subjects.

Table 3

Frequency Distribution for Ethnic Background

Ethnic Background	Frequency	Percentage
European	24	10.6
African	64	27.8
South-Central American	46	20.0
Pacific Islander	14	6.1
Other	78	33.9
No Answer	4	1.7
TOTAL	230	100.0

As can be seen in the table, for specific ethnic categories listed, the modal category is African (64), followed by South-Central American (46), and European (24).

Religious Affiliation

Table 4 shows the frequency distribution for the respective religious backgrounds of the subjects.

Table 4

Frequency Distribution for Religious Affiliation

Religious Affiliation	Frequency	Percentage
Protestant	87	37.8
Roman Catholic	93	40.4
Moslem	16	7.0
Buddhist-Hindu	7	3.0
Jewish and Other	24	10.4
No Answer	3	1.3
TOTAL	230	100.0

As can be seen in the table, for specific racial categories listed, the modal category is Black (73), followed by Hispanic-Mexican (55), and White (18). The "Other" category is composed of racial backgrounds that had a frequency of five or less, including Japanese, Chinese, Cambodian, Thai, Korean, Hispanic-South American, Hispanic-Spanish, Hispanic-Caribbean Islander,

White Hispanic-Mexican, White Hispanic-South American, Black Hispanic Only, Black Hispanic-Mexican, and Black Hispanic-South American.

Language Spoken at Home

When the subjects were asked what language was most frequently spoken in their parental homes, 158 (68.7%) said English and 36 (15.7%) said Spanish. Five (2.2%) of the subjects said Other, and 31 (13.5%) did not answer the question.

Read and Write English

When the subjects were asked if they read and wrote English, 224 (97.4%) indicated that they did and 6 (2.6%) indicated that they did not. Forty-five (19.6%) of the subjects indicated that the read and wrote Spanish while 185 (80.4%) indicated they did not read or write Spanish.

Last School Attended

Among the 230 subjects, 221 indicated they attended some kind of school before being incarcerated. The majority (124, or 53.9%) said they last attended a Public school, followed by 21 (9.1%) who said they attended a Private Church Related School. The remainder of the subjects indicated attending other types of schools, including Trade and Adult Night School, among others.

Months Incarcerated

Table 5 shows the frequency distribution for the number of months the subjects had been incarcerated (the "holding period") at the time of the study.

Table 5

Frequency Distribution for Months Incarcerated

Months Incarcerated	Frequency	Percentage
0 (less than 1)	52	22.6
1	63	27.4
2	25	10.9
3	19	8.3
4	15	6.5
5	15	6.5
6	7	3.0
7	5	2.2
8	1	.4
9	2	.9
10	4	1.7
11	3	1.3
12	1	.4
15	1	.4
17	2	.9
19	1	.4
20	2	.9
24	2	.9
30	1	.4
31	1	.4
38	1	.4
47	1	.4
No Answer	5	2.2
TOTAL	230	100.0

As can be seen in the table, the modal category is on month (n=63), followed closely by less than one month (n=52). Overall for number of months incarcerated, the mean=3.55 months (s.d.=6.13 months) and the median=1.00 month. The distribution is thus skewed towards the low number of months. The range for the table is 47 months, ranging from less than one month to 47 months.

Summary

Among the 230 subjects studied, more than three-quarters were male between the ages of approximately 15 and 18. About a third were Black and a quarter were Hispanic-Mexican, while less than eight percent were Caucasian. Overall, about 92 percent of the subjects were non-White, from African and South-Central American ethnic backgrounds, followed by less than 11 percent from European ethnic backgrounds. Nearly 80 percent of the subjects were Christian, either Roman Catholic or Protestant. Nearly 75 percent of the subjects said that English was the dominant language spoken in their homes, and almost every subject said he or she could read and write English. By virtue of their ages, none of the subjects graduated high-school, but almost all indicated they were enrolled in some kind of school before being incarcerated, with more subjects saying they were attending a Public School than any other single category.

Half of the subjects were incarcerated one month or less when the data were collected, and about 90 percent were incarcerated for six months or less.

Thus, the data on knowledge and awareness of AIDS analyzed for this study, presented in the following sections, came primarily from non-White, Christian, teenage males of African and Hispanic descent who spoke and read English, and were incarcerated for a few months or less at the time of the study.

Tests of Hypotheses

The hypotheses of the study stated that there is a relationship between each of the behavioral and demographic variables of the study and, respectively, general knowledge of AIDS (knowledge test 1, or "Knowledge test") and awareness of how AIDS is transmitted (knowledge test 2, or "Awareness test"). In this section, findings for relationships with alpha=.05 or less are presented.

The presentation of the findings is organizized according to the statistical test used. Since each of the AIDS test scales produces a quantitative score, the type of test used depended on the scale of the behavioral or demographic variable: (a) if the variable was interval, the Pearson r was used; (b) if the variables was nominal and dichotomous, the t-test was used; (c) if

the variable was nominal and had more than two categories, ANOVA was used. Following from this, the significant findings for the Pearson r are first presented, then for the t-test for the difference between the means of independent samples, then for the analysis of variance. After this presentation, in a separate section, post hoc test results are shown for significant interaction effects using two-way ANOVA.

Frequency Distributions of AIDS Tests

Before presenting the significant findings, the frequency distribution for the scores on the "knowledge test" and the "awareness test" are shown, respectively, in Table 6 and Table 7. For each test, the higher the score, the more the number of correct answers given by the subject. For the knowledge test, the maximum score a subject could have attained was 9, and for the awareness test, the maximum score a subject could have attained was 8.

Table 6

Frequency Distribution for Knowledge Test

Score	Frequency	Percentage
0	13	5.7
1	17	7.4
2	29	12.6
3	45	19.6
4	36	15.7
5	49	21.3
6	30	13.0
7	7	3.0
8	4	1.7
TOTAL	230	100.0

For table 6, in which the maximum possible number of correct answers was 9 for the general knowledge test, the mean=3.74 correct answers (s.d.=1.87), the median=4.00 correct answers, and the mode=5.00 correct answers. Only 4.7 percent of the subjects scored 7 or more items correct, and only 13.1 percent scored 1 or no items correct. Their results thus indicate middling general knowledge of AIDS.

Table 7

Frequency Distribution for Awareness Test

Score	Frequency	Percentage
0	21	9.1
1	35	15.2
2	31	13.5
3	32	13.9
4	31	13.5
5	22	9.6
6	22	9.6
7	24	10.4
8	12	5.2
TOTAL	230	100.0

For table 7, in which the maximum number of correct answers was 8, the mean=3.58 correct answers (s.d.=2.37), the median=3.00 correct answers, and the mode=1.00 correct answer. Only 15.7% of the subjects scored 7 or more items correct while nearly one-quarter (24.3%) of the subjects scored 1 or no items correct. Their results on the awareness test (for how the AIDS virus is transmitted) thus indicate middling, but somewhat less, knowledge than on the general knowledge of AIDS test.

Significant Results Using the Correlation Coefficient

Table 8 shows the variables related to the AIDS Knowledge and Awareness tests, using the Pearson r.

Table 8

Significant Correlation Coefficients Between the Behavioral and Demographic Variables and the AIDS Tests (Sample size in parentheses)

Variable	Knowledge Test	Awareness Test
Drug-related previous arrests	.12** (224)	NS
previous arrests-burglary	.11* (229)	NS
previous arrests-grand theft	NS	.12** (226)
previous arrests-other	.11* (221)	.12** (221)
number of times previously incarcerated	NS	.16** (174)
number of tatoos	NS	.14* (132)
number of tatoos done by a professional	.17** (126)	NS
number of body piercings-lips	NS	-.12* (168)
number of body piercings-nipples	-.15** (168)	-.16** (168)
number of body piercings-nose	NS	-.16** (168)
number of times shared an IV drug needle	NS	-.54** (21)
number of times had a sexually transmitted disease	.20* (67)	NS
age would require children to receive AIDS education	.14** (174)	NS

*=.05, **=.01

As the table shows, five significant relationships

involved previous arrests or incarceration and they are positive, i.e., the more the number of arrests or incarcerations, the higher the score on either the knowledge test or the awareness test (only on previous arrests-other was there a significant relationship with both tests).

Needle usage was also significant in several instances, as indicated by tatoo behavior, body piercing behavior, and sharing an IV drug needle. It is important to note, however, that for tatoo behavior, the correlations with the respective test scores was positive whereas for body piercings and sharing an IV drug needles the correlations for the respective test scores were negative, indicating that the fewer the body piercings and sharing of drug needles the higher the knowledge or awareness--especially awareness of how AIDS is transmitted (which was significant in four out of these five relationships).

Finally, as regards sexual behavior, it may be noted that the more times the subjects had a sexually transmitted disease, the more their general knowledge of AIDS.

T-Tests for Means of Independent Samples

The dichotomous nominal scale variables that were associated with the subjects' scores on the AIDS knowledge and awareness tests were analyzed using the t-test for the means of independent samples. The results for the Knowledge test are shown in Table 9 and the results for the Awareness test are shown in Table 10. Commentary will be made about both tables following Table 10.

Table 9

Significant T-Tests Between the Behavioral and Demographic Variables and the AIDS Knowledge Test

Variable	Group	N	Mean (S.D.)	t-score
Do teachers consider you to be intelligent?	Yes	124	4.02 (1.73)	2.50**
	No	106	3.40 (1.98)	
Are you currently pregnant	Yes	14	2.78 (1.67)	-2.33*
	No	36	4.03 (1.74)	
Have you had sexually transmitted diseases?	Yes	65	3.37 (1.79)	-2.10*
	No	163	3.93 (1.86)	
Have you received AIDS information from a school district?	Yes	124	4.18 (1.80)	4.13**
	No	105	3.19 (1.86)	
Have you receive AIDS information from a community organization?	Yes	24	4.46 (1.69)	2.20*
	No	205	3.64 (1.88)	
Received no AIDS information in the past month	Yes	10	2.70 (1.49)	-2.20*
	No	219	3.78 (1.88)	
Had blood test as requirement for military	Yes	20	4.50 (1.50)	2.31*
	No	210	3.67 (1.89)	

*=.05; **=.01

Table 10
Significant T-Tests Between the Behavioral and Demographic Variables and The AIDS Awareness Test

Variable	Group	N	Mean (S.D.)	t-score
Sex	Male	176	3.36 (2.32)	-2.46*
	Female	53	4.28 (2.42)	
Do friends consider you to be intelligent?	Yes	142	3.92 (2.42)	2.91**
	No	88	3.02 (2.18)	
Do teachers consider you to be intelligent?	Yes	124	4.00 (2.33)	2.97**
	No	106	3.08 (2.32)	
Do other adults consider you to be intelligent?	Yes	129	3.85 (2.42)	2.02*
	No	101	3.23 (2.59)	
Do you read books?	Yes	128	3.97 (2.39)	2.86**
	No	102	3.09 (2.26)	
Do you have a legal driver's license?	Yes	30	2.40 (2.08)	-3.65**
	No	159	3.94 (2.30)	
Do you have any cousins in a gang?	Yes	108	4.06 (2.34)	2.92**
	No	122	3.16 (2.32)	
Have you had a body piercing done by a professional?	Yes	73	4.27 (2.43)	2.86**
	No	92	3.24 (2.14)	
Have you shared an IV drug needle with someone?	Yes	20	2.45 (1.54)	-3.24**
	No	210	3.68 (2.41)	

Variable	Group	N	Mean (S.D.)	t-score
Did you use a condom when had sex with an infected person?	Yes	58	2.98 (2.00)	-2.00*
	No	27	3.92 (2.04)	
Have you received AIDS information from a school district?	Yes	124	3.96 (2.37)	2.77**
	No	105	3.10 (2.29)	
Blood test required--don't know what for	Yes	15	5.27 (2.05)	3.28**
	No	214	3.45 (2.35)	
Did you have a blood test voluntarily?	Yes	122	3.90 (2.36)	2.22*
	No	108	3.21 (2.33)	
Will you go to have a blood test for the AIDS virus in a hospital/ emergency room/ outpatient clinic?	Yes	24	4.58 (2.60)	2.02**
	No	206	3.46 (2.32)	
Did you have a blood transfusion between 1977-1985?	Yes	19	2.47 (2.17)	-2.32*
	No	207	3.69 (2.38)	
Are you a man who has had sex with another man at some time since 1977?	Yes	55	2.98 (2.43)	-2.11*
	No	175	3.77 (2.32)	
Have you taken illegal drugs by needle at any time since 1977?	Yes	22	2.68 (1.76)	-2.42*
	No	208	3.67 (2.41)	

*=.05; **=.01

As the above two tables show, whereas 7 variables were associated with the Knowledge test, 17 variables were associated with the Awareness test. Only two

variables were related to both of the AIDS tests: "Do teachers consider you to be intelligent?" and "Have you received AIDS information from a school district?" In both instances, those who answered "yes" had higher mean scores than those who answered "no."

In addition, for the Knowledge test, it may be noted that those who exhibited more knowledge were, respectively: (a) women who were not currently pregnant, (b) subjects who never had a sexually transmitted disease, (c) subjects who received AIDS information from a community organization, (d) subjects who received no AIDS information in the past month, and (e) subjects who had a blood test as a requirement for the military. The only surprising finding, here, perhaps, is for item "d" above.

For the Awareness test, in addition to the findings presented above, it may be noted that those who exhibited more awareness of how the AIDS virus is transmitted were, repsectively, the following subjects: (a) females, (b) those who said their friends considered them to be intelligent, (c) those who said their teachers considered them to be intelligent, (d) those who said other adults considered them to be intelligent, (e) those who did not have a legal driver's license, (f) those who had a cousin in a gang, (g) those who had a body piercing done by a professional, (h) those who never shared an IV drug

needle with someone, (i) those who did not use a condom when having sex with an infected person, (j) those who had a blood test required but didn't know what it was for, (k) those who had a blood test done voluntarily, (l) those who said they would have a blood test for the HIV virus done in a hospital/emergency room/outpatient clinic, (m) those who had not had a blood transfusion between 1977 and 1985, (n) males who had sex with another male since 1977, and (o) males who had not taken illegal drugs by needle since 1977.

From among these variables, it may be noted that many involve sexual behavior, needle usage, and drug transfusions--variables one would expect to be related to awareness of how the AIDS virus is transmitted. For most of the variables, the result was in the direction expected, while the most anomolous result seemed to be for those who did not use a condom when having sex with an infected person (they had more awareness).

One-Analysis of Variance

The nominal variables with at least three categories that were associated with participants' scores on the AIDS Knowledge and Awareness tests were analyzed using analysis of variance. The findings for the Knowledge and Awareness tests are shown, respectively, in Tables 11 and 12, followed by commentary about the findings.

Table 11

Significant F-Tests for the AIDS Knowledge Test

Variable	Source of Variation	Degrees of Freedom	Mean Squares	F-ratio	Significant Variable Pairs
Least favorite subject	Between	5	8.16	2.43*	English-History and Math
	Within	214	3.35		
How often use marijuana	Between	5	10.24	3.11**	ocassionaly and never; 2-3 times and never
	Within	217	3.29		
How much you say you know about AIDS?	Between	4	15.22	4.59**	a lot and don't know; a lot and a little
	Within	223	3.32		
Have you heard of a virus called HIV?	Between	2	26.13	7.89**	yes and don't know; yes and no
	Within	226	3.31		
Have you ever heard of a blood test to detect the AIDS virus?	Between	2	20.83	6.32**	yes and don't know; yes and no
	Within	225	3.30		
To your knowledge, are blood donations routinely tested for the AIDS virus?	Between	3	20.46	6.28**	yes and don't know
	Within	225	3.26		
Were blood tests you had required or voluntary?	Between	3	11.34	3.08*	all voluntary and all required
	Within	75	3.68		
Do you expect to have a test for AIDS in the next 12 months?	Between	3	9.83	2.86*	never heard of the test and don't know
	Within	225	3.43		
Do you think the present supply of blood is safe for transfusions?	Between	2	16.21	4.79**	no and don't know; yes and don't know
	Within	226	3.38		
Are condoms effective to prevent AIDS?	Between	4	18.68	5.77**	somewhat and don't know; very effective and don't know
	Within	225	3.23		
What are your chances of having the AIDS virus?	Between	4	21.76	6.84**	low and high; low and don't know; none and high; none and don't know
	Within	225	3.18		
What are your chances of getting the AIDS virus?	Between	4	13.00	3.88**	none and high; none and don't know
	Within	224	3.35		
Have you personally known anyone with AIDS or AIDS virus?	Between	2	18.01	5.35**	no and don't know
	Within	226	3.37		
Who did you live with before incarceration?	Between	8	8.55	2.57**	parents and relatives
	Within	221	3.32		
Percentage of times have had sex with a male prostitute	Between	3	11.92	3.53*	50% and 25%
	Within	221	3.38		

*=.05; **=.01

Table 12

Significant F-Tests for the AIDS Awareness Test

Variable	Source of Variation	Degrees of Freedom	Mean Squares	F-ratio	Significant Variable Pairs
Father's Education	Between	7	12.21	2.22*	no significant differences
	Within	183	5.50		
Frequency of contact with mother	Between	6	12.86	2.40*	no significant differences
	Within	215	5.37		
How often do you use marijuana?	Between	5	19.74	3.79**	daily and weekly
	Within	217	5.20		
How much would you say you know about AIDS?	Between	4	20.23	3.81**	a lot and don't know
	Within	223	5.31		
Have you heard of a virus called HIV?	Between	2	17.87	3.26*	yes and don't know
	Within	226	5.47		
To your knowledge, are blood donations routinely tested for the AIDS virus?	Between	3	51.20	10.19**	yes and don't know; never heard of the test and don't know
	Within	225	5.02		
Times had blood tested for AIDS virus, not including blood donations?	Between	4	21.72	4.08**	once and don't know
	Within	224	5.32		
Do you want results of last AIDS test?	Between	2	32.46	6.31**	yes and no
	Within	63	5.14		
Expect to have test for AIDS in next 12 months?	Between	3	31.31	5.95**	yes and no; never heard of text and no; never heard of test and don't know
	Within	225	5.26		
Are condoms effect in preventing AIDS?	Between	4	29.19	5.62**	somewhat and don't know; not at all and don't know; very effective and don't know
	Within	225	5.19		
Have you personally known anyone with AIDS or AIDS virus?	Between	2	61.27	11.94**	no and don't know
	Within	226	5.13		
Is mother employed?	Between	2	24.01	4.38**	employed and not employed
	Within	206	5.48		
Were blood tests you had required or voluntary?	Between	3	21.59	3.68*	all voluntary and all required
	Within	75	5.87		
What are your chances of having the AIDS virus?	Between	4	20.24	3.78	none and don't know; none and medium
	Within	225	5.35		
Who did you live with before incarceration?	Between	8	15.91	3.04	other and relative; other and mother; other and father
	Within	221	5.23		

*=.05; **=.01

For each of the above tables, 15 variables were significantly related to, respectively, the AIDS Knowledge test and the AIDS Awareness test. Ten variables were significantly related to both the Knowledge and Awareness tests, including: (a) how often do you use marijuana? (b) how much do you say you know about AIDS? (c) have you heard of a virus called HIV? (d) to your knowledge, are blood donations routinely tested for the AIDS virus? (e) were blood tests you had required or voluntary? (f) do you expect to have a test for AIDS in the next 12 months? (g) are condoms effective in preventing AIDS? (h) what are you chances of having the AIDS virus? (i) have you personally known anyone with AIDS or the AIDS virus? and (j) who did you live with before incarceration?

Those variables that were related only to the AIDS Knowledge test were (a) what is your least favorite subject? (b) have you heard of a blood test to detect the AIDS virus? (c) Do you think the present supply of blood is safe for transfusions? (d) what are your chances of getting the AIDS virus, and (e) what is the percentage of times you have had sex with a male prostitute?

Those variables that were related only to the AIDS Awareness test were (a) what is your father's education? (b) what is the frequency of contact with your mother? (c) were there times you had your blood tested for the

AIDS virus, not including blood donations? and (d) do you want the results of your last AIDS test? and (e) is your mother employed?

From the above, it may be noted that three of the five variables associated only with the Awareness test involved the subject's mother or father whereas none of the variables associated only with the Knowledge test involved a subject's parent; several of the associations for each test involved, respectively, items referring to sex and blood donation behavior; and none of the relationships for either test involved needle behavior, i.e., behaviors involving tatoos, body piercings, or intravenous drug use.

Post-Hoc Analysis: Two-Way Analysis of Variance

Selected background characteristics of the subjects were looked at in relationship to the behavioral variables, to see if there were interaction effects for, respectively, the AIDS Knowledge and Awareness tests. The F-scores and alpha levels for significant interactions for the Knowledge test and Awareness test are shown in Table 13.

Table 13

Significant F-Scores for Interactions for the AIDS Knowledge and Awareness Tests

Variables in the Interaction	Knowledge Test	Awareness Test
Religious affiliation/What is your least favorite subject	2.13**	NS
Religious affiliation/ What percentage of sex have you had with male prostitutes	NS	1.98*
Sex/Have you ever heard of a blood test to detect the AIDS virus	5.65**	3.12*
Sex/Except for blood donations since 1985, have you had your blood tested for the AIDS virus infection	NS	2.68*
Sex/Do you think condoms are effective to prevent AIDS	2.62*	NS
Sex/What are your chances of getting the AIDS virus	2.64*	NS
Race/What are your chances of having the AIDS virus	NS	1.73*
Ethnicity/Have you heard of a virus called HIV	1.98*	NS
Ethnicity/What are your chances of having the AIDS virus	1.95*	NS
Ethnicity/Have you personally known anyone with AIDS or the AIDS virus	2.17*	NS
Ethnicity/Who did you live with before incarceration	NS	1.63*
Frequency of contact with father/Ever heard of a blood test to detect the AIDS virus	NS	2.13*
Frequency of contact with father/Except for blood donations since 1985, was your blood tested for the AIDS virus	1.82*	2.58**

Variables in the Interaction	Knowledge Test	Awareness Test
Frequency of contact with father/How many times was your blood tested for the AIDS virus, not including blood donations	1.75*	2.13**
Frequency of contact with father/Have you personally known anyone with AIDS or the AIDS virus	NS	3.40**
Father's education/Have you personally known anyone with the AIDS virus	2.80**	2.07*
Father's education/Have you ever heard of a blood test to detect the AIDS virus	2.11*	NS
Father's education/Except for blood donations since 1985, have you had your blood tested for the AIDS virus	2.07**	NS
Father's education/Do you want the results of your last blood test	2.70*	NS
Father's education/What is your chance of having the AIDS virus	1.64*	NS
School group at LP/How much you say you know about AIDS	1.62*	NS
School group at LP/How many times was your blood tested for the AIDS virus, not including blood donations	1.82**	NS
School group at LP/How many times in the past 12 months have you had your blood tested for the AIDS virus, not including blood donations	1.62*	NS
Do you have contact with your mother/Is your mother employed	NS	4.16*

*=.05; **=.01

The above table shows that there were 17 significant interactions involved in the AIDS Knowledge test and 11 significant interaction involved in the AIDS Awareness test. Four of the sets of variables showed significant interaction for both AIDS tests, including: (a) Sex/Have you ever heard of a blood test to detect the AIDS virus, (b) Frequency of contact with father/Except for blood donations since 1985, was your bood tested for the AIDS virus, (c) Frequency of contact with father/How many times was your bood tested for the AIDS virus, not including blood donations, and (d) Father's education/Have you personally known anyone with the AIDS virus.

The interactions involved in only the Knowledge test were (a) Religious affiliation/What is your least favorite subject, (b) Sex/Do you think condoms are effective to prevent AIDS, (c) Sex/What are your chances of getting the AIDS virus, (d) Ethnicity/Have you heard of a virus called HIV, (e) Ethnicity/What are your chances of having the AIDS virus, (f) Ethnicity/Have you personally known anyone with AIDS or the AIDS virus, (g) Frequency of contact with father/Ever heard of a blood test to detect the AIDS virus, (h) Frequency of contact with father/How many times was your blood tested for the AIDS virus, not including blood donations, (i) Father's education/Have you ever heard of a blood test to detect

the AIDS virus, (j) Father's education/Except for blood donations since 1985, have you had your blood tested for the AIDS virus, (k) Father's education/Do you want the results of your last blood test, (l) Father's education/What is your chance of having the AIDS virus, (m) School group at LP/How much you say you know about AIDS, (n) School group at LP/How many times was your blood tested for the AIDS virus, not including blood donations, and (o) School group at LP/How many times in the past 12 months have you had your blood tested for the AIDS virus, not including blood donations.

Of these interactions involved in the Knowledge test, it may be pointed out here that three involved sex, three involved ethnicity, four involved father's education, three involved school group at LP, and three involved what the subject thought his or her chance was of having the AIDS virus.

The interactions involved in only the Awareness test were (a) Religious affiliation/What percentage of sex have you had with male prostitutes, (b) Sex/Except for blood donations since 1985, have you had your blood tested for the AIDS virus infection, (c) Race/What are your chances of having the AIDS virus, (d) Ethnicity/Who did you live with before incarceration, (e) Frequency of contact with father/Ever heard of a blood test to detect the AIDS virus, (f) Frequency of contact with father/Have

you personally known anyone with AIDS or the AIDS virus, and (g) Do you have contract with your mother/Is your mother employed. Of these interactions involved in the Awareness test, it may be pointed out here that none of the variables was involved in more than one interaction.

Chapter V

Summary, Conclusions, and Recommendations

Summary

The purpose of the study was, first, to determine the extent of knowledge and awareness of AIDS possessed by incarcerated youth and, second, to determine the behavioral and demographic characteristics of the inmates--most of them Black and Hispanic--that were significantly related to the AIDS test scores. The study was considered important for several reasons. First, it filled a virtual void in the literature on incarcerated adolescents' knowledge and awareness of AIDS. Second, it focused on Black and Hispanic individuals' knowledge and awareness of AIDS. Both of these groups had been underrepresented in the literature, despite the fact that they had been shown to be high risk-takers when it came to unsafe sex and needle practices--the primary ways that AIDS is transmitted throughout society. In addition, most of the research participants were heterosexual, and the rate of AIDS has been increasing most rapidly of late through heterosexual transmission. Thus, the researcher hoped to contribute much needed facts about the AIDS-related knowledge and behaviors among these ethnic adolescent groups that could be used by educators, politicians, and others in AIDS prevention programs.

The ultimate sample studied consisted of 230 boys and girls of various ethnic, religious and racial groups, most of them between 13 and 18 years of age, who were incarcerated during 1991 in the Los Padrinos Juvenile Hall (LPJH), in Downey, California. The Juvenile Hall, a part of the L. A. County Office of Education, was basically a holding facility for youth picked up and booked by the police. The sample of 230 individuals studied, who constituted about a third of the population at LPJH, were primarily non-White, Christian, teenage males of African and Hispanic descent who spoke and read English, and were incarcerated for a few months or less at the time of the study.

The research questionnaire to collect information about subjects' knowledge and awareness of AIDS was adapted by the researcher from the "National Health Interview Survey" (NHIS) instrument, which was created by the U. S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Center for Health Statistics, titled "AIDS Knowledge and Attitudes for July--September 1990." In addition to this instrument, a questionnaire created by the researcher was used to collect information from the subjects about the following: (a) their biological characteristics (sex, race, age, etc.), (b) parental-household living situation; (c) parental education and work background;

(d) religion; (e) drug-related behaviors; (f) sexual behaviors; (g) needle-related behaviors (e.g., for tattoos, drug abuse, blood transfusions); and (h) gang-related behaviors.

One of the AIDS tests administered to the 230 research participants was a general knowledge test (the Knowledge Test), in which the subjects were presented with nine statements about AIDS and were asked to indicate whether each was "Definitely true," "Probably true," "Probably false," "Definitely false," or "Don't know." For each statement, the researcher determined which answer was correct or incorrect. The highest score a person could attain on this test was 9, for answering every question correctly. The second AIDS test focused exclusively on knowledge of how the AIDS virus is transmitted, and was referred to as the AIDS Awareness test. It is composed of eight statements. For each statement, the subject was to answer "Very likely," "Somewhat likely," "Somewhat unlikely," "Very unlikely," "Definitely not possible," or "Don't know." The highest score a subject could attain on this test was 8, for answering every question correctly.

The total scores for each participant on the Knowledge test and on the Awareness test were analyzed in relationship to the behavioral and demographic data that were collected. These data were grouped into various

categories, including "ethnicity," "sexual behaviors," "demographic characteristics," and "use of needles," among others.

Both descriptive and inferential statistics were used to analyze the data. The inferential statistics were used to test the two general hypotheses of the study, each of which posited a significant relationship between the AIDS Knowledge and Awareness scores and each of the behavioral and demographic variables.

Based on the statistical analysis of the data, the results showed that, for the AIDS Knowledge Test, in which the maximum possible number of correct answers was 9, the mean=3.74 correct answers (s.d.=1.87), the median=4.00 correct answers, and the mode=5.00 correct answers. Only 4.7 percent of the subjects got 7 or more items correct, and only 13.1 percent got 1 or no items correct. The subjects' results thus indicated middling general knowledge of AIDS.

For the AIDS Awareness Test, in which the maximum possible number of correct answers was 8, the mean=3.58 correct answers (s.d.=2.37), the median=3.00 correct answers, and the mode=1.00 correct answer. Only 15.7% of the subjects got 7 or more items correct while nearly one-quarter (24.3%) of the subjects got 1 or no items correct. The subjects' results for how the AIDS virus is transmitted thus indicated middling awareness, with their

score being somewhat lower than on the Knowledge Test.

Tests of Hypotheses

As regards the tests of the hypotheses, the Pearson r revealed that the following behavioral or demographic variables were significantly related to both the AIDS Knowledge and Awareness tests: (a) previous arrests-other (positively related to both tests), and (b) number of body piercings-nipples (negatively related to both tests).

The Pearson r revealed that the following behavioral or demographic variables were significantly related to only the AIDS Knowledge test: (a) drug-related previous arrests (positively related), (b) previous arrests-burglary (positively related), (c) number of tatoos done by a professional (positively related), (d) number of times had a sexually transmitted disease (positively related), and (e) age would require children to receive AIDS education (positively related).

The Pearson r revealed that the following behavioral or demographic variables were significantly related to only the AIDS Awareness Test: (a) previous arrests-grand theft (positively related), (b) number of times previously incarcerated (positively related), c) number of tatoos (positively related), (d) number of body piercings-lips (negatively related), (e) number of body

piercings-nose (negatively related), and (f) number of times shared an IV drug needle (negatively related).

Using the t-test, it was found that 7 variables were significantly associated with the Knowledge test and 17 variables were significantly associated with the Awareness test. Only two variables were related to both of the AIDS tests: (a) do teachers consider you to be intelligent?, and (b) have you received AIDS information from a school district? In both instances, those who answered "yes" had higher mean scores than those who answered "no."

For the Knowledge test only, the t-test showed that those who exhibited more knowledge were: (a) women who were not currently pregnant, (b) subjects who never had a sexually transmitted disease, (c) subjects who received AIDS information from a community organization, (d) subjects who received no AIDS information in the past month, and (e) subjects who had a blood test as a requirement for the military.

For the Awareness test only, the t-test showed that those who exhibited more awareness of how the AIDS virus is transmitted were: (a) females, (b) those who said their friends considered them to be intelligent, (c) those who said their teachers considered them to be intelligent, (d) those who said other adults considered them to be intelligent, (e) those who did not have a

legal driver's license, (f) those who had a cousin in a gang, (g) those who had a body piercing done by a professional, (h) those who never shared an IV drug needle with someone, (i) those who did not use a condom when having sex with an infected person, (j) those who had a blood test required but didn't know what it was for, (k) those who had a blood test done voluntarily, (l) those who said they would have a blood test for the HIV virus done in a hospital/emergency room/outpatient clinic, (m) those who had not had a blood transfusion between 1977 and 1985, (n) males who had sex with another male since 1977, and (o) males who had not taken illegal drugs by needle since 1977.

Using ANOVA, the study found that 10 variables were significantly related to both the Knowledge and Awareness tests, including: (a) how often do you use marijuana? (b) how much do you say you know about AIDS? (c) have you heard of a virus called HIV? (d) to your knowledge, are blood donations routinely tested for the AIDS virus? (e) were blood tests you had required or voluntary? (f) do you expect to have a test for AIDS in the next 12 months? (g) are condoms effective in preventing AIDS? (h) what are you chances of having the AIDS virus? (i) have you personally known anyone with AIDS or the AIDS virus? and (j) who did you live with before incarceration?

In addition, ANOVA revealed that the following

variables were related only to the AIDS Knowledge test: (a) what is your least favorite subject? (b) have you heard of a blood test to detect the AIDS virus? (c) Do you think the present supply of blood is safe for transfusions? (d) what are your chances of getting the AIDS virus, and (e) what is the percentage of times you have had sex with a male prostitute?

Those variables that ANOVA showed were related only to the AIDS Awareness test were: (a) what is your father's education? (b) what is the frequency of contact with your mother? (c) were there times you had your blood tested for the AIDS virus, not including blood donations? and (d) do you want the results of your last AIDS test? and (e) is your mother employed?

Post-Hoc Analyses

For the post-hoc analyses, using two-way ANOVA the study found that there were 17 significant interactions involved in the AIDS Knowledge test and 11 significant interactions involved in the AIDS Awareness test. Four of the sets of variables showed significant interaction for both AIDS tests, including: (a) Sex/Have you ever heard of a blood test to detect the AIDS virus, (b) Frequency of contact with father/Except for blood donations since 1985, was your blood tested for the AIDS virus, (c) Frequency of contact with father/How many

times was your blood tested for the AIDS virus, not including blood donations, and (d) Father's education/Have you personally known anyone with the AIDS virus.

For the Knowledge test only, the significant interactions were: (a) Religious affiliation/What is your least favorite subject, (b) Sex/Do you think condoms are effective to prevent AIDS, (c) Sex/What are your chances of getting the AIDS virus, (d) Ethnicity/Have you heard of a virus called HIV, (e) Ethnicity/What are your chances of having the AIDS virus, (f) Ethnicity/Have you personally known anyone with AIDS or the AIDS virus, (g) Frequency of contact with father/Ever heard of a blood test to detect the AIDS virus, (h) Frequency of contact with father/How many times was your blood tested for the AIDS virus, not including blood donations, (i) Father's education/Have you ever heard of a blood test to detect the AIDS virus, (j) Father's education/Except for blood donations since 1985, have you had your blood tested for the AIDS virus, (k) Father's education/Do you want the results of your last blood test, (l) Father's education/What is your chance of having the AIDS virus, (m) School group at LP/How much you say you know about AIDS, (n) School group at LP/How many times was your blood tested for the AIDS virus, not including blood donations, and (o) School group at LP/How many times in

the past 12 months have you had your blood tested for the AIDS virus, not including blood donations.

For the Awareness Test only, the significant interactions were: (a) Religious affiliation/What percentage of sex have you had with male prostitutes, (b) Sex/Except for blood donations since 1985, have you had your blood tested for the AIDS virus infection, (c) Race/What are your chances of having the AIDS virus, (d) Ethnicity/Who did you live with before incarceration, (e) Frequency of contact with father/Ever heard of a blood test to detect the AIDS virus, (f) Frequency of contact with father/Have you personally known anyone with AIDS or the AIDS virus, and (g) Do you have contract with your mother/Is your mother employed.

Conclusions

Based on the findings from the study, the following may be concluded. First, the research participants as a whole--who were primarily non-White male adolescents--exhibited relatively low general knowledge of AIDS and low awareness of how the AIDS virus is transmitted. Their mean scores on each test were less than 4 (out of a possible 9 or 8, respectively), and on the AIDS Knowledge Test, only 4.7 percent of the subjects scored 7 or more items correct, while on the Awareness Test, only 15.7 percent of the subjects scored 7 or more items

correct. Nonetheless, the fact that the incarcerated adolescents indicated some knowledge and awareness of AIDS leads to the conclusion that such knowledge and awareness is learned "in the streets" to some degree, through informal educational processes. This is important to be aware of, since many high-risk individuals in society drop out from educational institutions at relatively early ages.

A second important general conclusion of the study is that many behaviors involving sex and needle use--the most important behaviors responsible for the spread of AIDS--were related to knowledge and/or awareness of AIDS. For example, the study found that the number of times an adolescent had a sexually transmitted disease was positively related to the AIDS tests. This would seem to contradict the finding one would expect: higher disease rates would seem to be associated with lower knowledge and awareness. Another finding for sex that was considered surprising was that those who said they did not use a condom when having sex with an infected person showed more awareness of AIDS transmission than those who said they did use a condom. Such findings suggest the need for more research, and could imply that many irrational factors are involved in sexual behavior, even in the face of a relatively high degree of awareness or knowledge of AIDS.

As regards needle use, the study found, for example, that the "number of body piercings-nipples," was negatively related to both the AIDS Knowledge and Awareness Tests. Thus, generally, the greater the number of nipple piercings the subjects had, the lower their AIDS Knowledge and Awareness tests scores. This finding suggests a dangerous pattern, since, as mentioned, needle use is a major way AIDS is transmitted. Such youth clearly need to be the focus of education regarding needle use and AIDS. On the other hand, the study found that the use of needles was not consistently negatively related to AIDS knowledge and awareness. For example, the number of tatoos the subjects had done by a professional was found to be positively related to AIDS knowledge. This means that the greater the number of tatoos the subjects had, the more general knowledge of AIDS they had. To make matters even less clear, the study found that tatoo frequency was not significantly related to awareness of AIDS transmission at all.
This pattern of ambiguity in the findings was characteristics of many results of the data analysis. It suggests the need for more research into the behaviors of subjects most prone to contract and spreads AIDS.

Also as regards needle use, the study concluded that blood transfusion behavior was significantly related to the AIDS test scores in various instances. For example,

those who scored higher in the AIDS Awareness Test had a blood test done voluntarily, said they would have a blood test for the HIV virus done in a hospital/emergency room/outpatient clinic, and had not had a blood transfusion between 1977 and 1985. These findings seem to indicate, once again, the lack of a consistent pattern in accordance with expectation, between behavioral variables and the AIDS test scores.

In addition to sex and needle use, the study generally concluded that other behaviors were significantly related to AIDS knowledge and/or awareness. For example, "previous arrests-other" was positively related to both tests, and, more specifically, "previous arrests-burglary" was positively related to the tests. Such findings suggest that adolescents with more than one conviction, or those prone to burglary, may be more knowledgeable and aware of AIDS than other types of adolescent offenders. Why this would be the case, however, is not apparent from the findings.

Another major conclusion from the study is that knowledge and awareness of AIDS often was related to the demographic characteristics and personal background characteristics of the participants. For example, on the Awareness Test, females scored higher than males, and those with a cousin in a gang scored higher than those without a relative. A surprisingly consistent finding in

the category of personal background factors was that those research participants who said others considered them to be intelligent--their friends, teachers, and other adults--scored higher on the AIDS Awareness Test than those subjects who did not think others considered them to be intelligent. This finding could be interpreted to mean, among other things, that these subjects were, in fact, more intelligent than those with lower awareness of AIDS transmission, or that thinking as they did indicated more self-esteem, which was somehow related to AIDS awareness.

Based on the statistical results summarized above in this chapter, a final conclusion of significance from the study is that many behavioral variables were significantly related to either the Knowledge Test or the Awareness Test but not to both tests. For example, using the t-test, it was found that 7 variables were significantly associated with the Knowledge test and 17 variables were significantly associated with the Awareness test, while only two variables were related to both of the AIDS tests. Why such findings would exist is enigmatic to this researcher, as there does not appear to be any consistent pattern to the types of behaviors that are related to either the AIDS Knowledge Test or AIDS Awareness Test.

Recommendations

Based on the findings from the study, the following is recommended for sociological researchers and educators concerned with reducing the spread of the AIDS throughout society:

First, it is recommended that a replication of the current study be conducted with a larger population composed of incarcerated youth in institutions in various states, to better represent the population of incarcerated youth and increase the efficacy of the statistical tests conducted in the current study.

Second, because of the inconsistent nature of many of the findings in the current study, especially those concerning sexual and needle behavior in relation to AIDS knowledge and awareness, it is considered necessary to obtain a clearer understanding of these relationships. Towards this end, it is recommended that researchers conduct follow-up studies concentrating solely on each of these areas--sexual and needle behavior, respectively--through extended questionnaires in each of these areas as well as through interviews, which could more deeply probe the thinking of the subjects.

Third, it is recommended that more research be conducted with Black and Hispanic adolescents in relationship to AIDS than has been done in the past, since these groups are largely responsible today for the

heterosexual spread of AIDS in society, through their relatively high-risk behaviors involving sex and needle use. Too much attention has been focused in the literature on homosexual individuals, most of whom are Caucasian, and samples of middle class college students. It is time for increased awareness on the part of researchers that, with respect to AIDS, non-White ethnic heterosexuals now compose a relatively significant threat to themselves and society. More must be done, therefore, to understand their behaviors in relationship to AIDS knowledge and awareness, and to increase their levels of awareness about AIDS and how it is transmitted throughout society.

Fourth, it is recommended that administrators of institutions for juvenile offenders incorporate educational programs aimed at increasing the amount of AIDS knowledge and awareness among the inmates. In a literal sense, such youth compose a captive audience, and they therefore can be easily reached with information about AIDS that could save their lives and the lives of others with whom they have sex and share needles.

Sex: Male _____
Female _____

Race: Asian _____
Japanese _____
Chinese _____
Cambodian _____
Vietnamese _____
Thai _____
Korean
other _____
White _____
Black _____
Hispanic _____
Mexican _____
Central American _____
South American _____
Spanish _____
Caribbean Islander _____
other _____
Pacific Islander _____
Other _____

Ethnicity: European _____
African _____
South/Central American _____
Pacific Islander _____
other _____

Date of birth: _____ _____ _____
month day year

Thai _____
Korean
other _____

White _____
Black _____
Hispanic _____
Mexican _____
Central American _____
South American _____
Spanish _____
Caribbean Islander _____
other _____
Pacific Islander _____
Other _____

Ethnicity: European _____
African _____
South/Central American _____
Pacific Islander _____
other _____

Date of birth: _____ _____ _____
month day year

Age: _____ _____
years months

Religious affiliation: Protestant _____
Roman Catholic _____
Jewish _____
Moslem _____
Buddist/Hindu _____
other _____

Home zip code: _ _ _ _ _

Live with: father _____
mother _____
parent and stepparent _____
father and mother _____
relative _____
friend _____
girl/boy friend _____
alone _____
homeless _____
foster home _____
group/probation home _____
with own children _____

Other family members in home:

sister _____	how many?	_____
brother _____	how many?	_____
half/step sister _____	how many?	_____
half/step brother _____	how many?	_____
grandmother _____	how many?	_____
grandfather _____	how many?	_____
aunt _____	how many?	_____
uncle _____	how many?	_____
cousin _____	how many?	_____
foster children _____	how many?	_____
nieces/nephews _____	how many?	_____
your own children _____	how many?	_____

About your father:

do you live with him? _____ yes _____ no

have contact with him? _____ yes _____ no

homeless _____
foster home _____
group/probation home _____
with own children _____

Other family members in home:

sister _____	how many? _____	
brother _____	how many? _____	
half/step sister _____	how many? _____	
half/step brother _____	how many? _____	
grandmother _____	how many? _____	
grandfather _____	how many? _____	
aunt _____	how many? _____	
uncle _____	how many? _____	
cousin _____	how many? _____	
foster children _____	how many? _____	
nieces/nephews _____	how many? _____	
your own children _____	how many? _____	

About your father:

do you live with him?

_____ yes _____ no

have contact with him?

_____ yes _____ no

how frequent?

_____ daily
_____ weekly
_____ monthly
_____ several times a year
_____ once a year
_____ rarely
_____ never
_____ do not have male parent

is he employed?

_____ not employed
for how long _____
_____ previously employed
type of work _____

_____ employed
type of work _____

_____ professional
_____ skilled labor
_____ nonskilled labor
_____ service industry

education:

_____ grade 8
_____ some high school
_____ high school
_____ trade school
_____ some college
_____ college
_____ college plus
_____ G.E.D.

About your mother:

do you live with her?

_____ yes _____ no

have contact with her?

_____ yes _____ no

how frequent?

_____ daily
_____ weekly
_____ monthly
_____ several times a year
_____ once a year
_____ rarely
_____ never
_____ do not have female parent

_____ some high school
_____ high school
_____ trade school
_____ some college
_____ college
_____ college plus
_____ G.E.D.

About your mother:

do you live with her?

_____ yes _____ no

have contact with her?

_____ yes _____ no

how frequent?

_____ daily
_____ weekly
_____ monthly
_____ several times a year
_____ once a year
_____ rarely
_____ never
_____ do not have female parent

is she employed?

_____ not employed
for how long _____
_____ previously employed
type of work _____
_____ employed
type of work _____
_____ professional
_____ skilled labor
_____ nonskilled labor
_____ service industry

education:

_____ grade 8
_____ some high school
_____ high school
_____ trade school
_____ some college
_____ college
_____ college plus
_____ G.E.D.

Do you speak?

_____ English
_____ Spanish
_____ other _____

which language did you first speak as a baby?

_____ English
_____ Spanish
_____ other _____

which language is most frequently spoken in your home?

_____ English
_____ Spanish
_____ other _____

do you read and write?

_____ English
_____ Spanish
_____ other _____

What grade of school would you be in on the outs

Do you speak? _____ English
_____ Spanish
_____ other _____

which language did you first speak as a baby?

_____ English
_____ Spanish
_____ other _____

which language is most frequently spoken in your home?

_____ English
_____ Spanish
_____ other _____

do you read and write?

_____ English
_____ Spanish
_____ other _____

What grade of school would you be in on the outs _____

last school attended _____ public
_____ private non-church related
_____ private church related
_____ probation
_____ camp
_____ CDC
_____ hall
_____ continuation
_____ adult/night school

what is your school group at L.P. _____

how often did you attend school on the outs?

_____ regularly
_____ occasionally
_____ rarely
_____ never

Why? _____

least favorite subject in school _____

most favorite subject in school _____

do you consider yourself to be a good student? _____ yes _____ no

why _____

do you consider yourself a happy person _____
sad person _____
angry person _____
moody person _____
calm person _____
other _____

do you consider yourself to be intelligent? _____ yes _____ no

do other people consider you to be intelligent? _____ yes _____ no

if yes, who? _____ parents
_____ friends
_____ teachers

least favorite subject in school _____

most favorite subject in school _____

do you consider yourself to be a good student? _____ yes _____ no

why _____

do you consider yourself a happy person _____
sad person _____
angry person _____
moody person _____
calm person _____
other _____

do you consider yourself to be intelligent? _____ yes _____ no

do other people consider you to be intelligent? _____ yes _____ no

if yes, who? _____ parents
_____ friends
_____ teachers
_____ other adults

have you ever received small group instruction in school? (like special ed or speech classes)? _____ yes _____ no

if yes, what subjects? _____

have you ever received migrant ed instruction? _____ yes _____ no

did you attend a preschool/headstart program? _____ yes _____ no

if yes, how old were you when you started? _____
how many years did you attend? _____

do you read for pleasure? _____ _____
yes no

if yes, what do you read? _____ newspaper _____
_____ magazines _____
_____ books _____
_____ other _____

what is your favorite type of music? _____
favorite group _____
favorite individual _____

what is your favorite TV channel? _____
what is your favorite TV show? _____

why? _____

do you keep up with the news? _____ _____
yes no

by TV _____
by newspaper _____
by news magazine _____
by radio _____

what is your favorite radio station? _____
why? _____

if yes, what do you read? _____ newspaper _____
_____ magazines _____
_____ books _____
_____ other _____

what is your favorite type of music? _____
favorite group _____
favorite individual _____

what is your favorite TV channel? _____
what is your favorite TV show? _____

why? _____

do you keep up with the news? _____ _____
yes no

by TV _____
by newspaper _____
by news magazine _____
by radio _____

what is your favorite radio station? _____
why? _____

who is the person you would consider your role model?

_____

what do you like best about yourself? _____

what do you like least about yourself? _____

Date of arrest: _____ _____ _____
month day year

for how long have you been incarcerated: _____ _____ _____
years months days

arrested for: _____ homicide
_____ manslaughter
_____ rape
_____ kidnapping
_____ drug related
sales _____
possession _____
use _____
_____ other violent crime _____
_____ burglary
_____ grand theft
_____ petty theft
_____ warrant
_____ run away/domestic
_____ other

was your crime gang-related? _____ yes _____ no

location arrested at: _____ within 5 miles of home
_____ within 10 miles of home
_____ within 20 miles of home
_____ 21 - 50 miles from home
_____ 51 or more miles from home

number of previous arrests: _____

GANG Related?

previous arrests: _____ homicide #_____
_____ manslaughter #_____
_____ rape #_____
_____ kidnapping #_____
drug related #

_____ other violent crime _____
_____ burglary
_____ grand theft
_____ petty theft
_____ warrant
_____ run away/domestic
_____ other

was your crime gang-related? _____ yes _____ no

location arrested at:
_____ within 5 miles of home
_____ within 10 miles of home
_____ within 20 miles of home
_____ 21 - 50 miles from home
_____ 51 or more miles from home

number of previous arrests: _____

GANG Related?

previous arrests:
_____ homicide #_____
_____ manslaughter #_____
_____ rape #_____
_____ kidnapping #_____
_____ drug related #_____
_____ sales
_____ possession
_____ use
_____ other violent crime #_____
type _____
_____ burglary #_____
_____ grand theft #_____
_____ petty theft #_____
_____ warrant #_____
type: _____
_____ runaway/domestic #_____
_____ other #_____
type: _____

have you ever been incarcerated before? _____ yes _____ no

if yes, how many times? _____

if yes, how many gang-related? _____

longest period of time incarcerated: _____ years _____ months _____ days

have you ever used an alias? _____ yes _____ no

if yes, how many times? _____

are you currently using an alias? _____ yes _____ no

most frequent type of legal employment: _____

_____ never employed
_____ skilled labor
_____ semi-skilled
_____ unskilled
_____ service industry

do you drive? _____ yes _____ no

if yes, do you have a legal driver's license? _____ yes _____ no

_____ years _____ months _____ days

have you ever used an alias? _____ yes _____ no

if yes, how many times? _____

are you currently using an alias? _____ yes _____ no

most frequent type of legal employment: _____

_____ never employed
_____ skilled labor
_____ semi-skilled
_____ unskilled
_____ service industry

do you drive? _____ yes _____ no

if yes, do you have a legal driver's license? _____ yes _____ no

do you own a car? _____ yes _____ no

are you a gang member? _____ yes _____ no _____

age at which you became a member: _____
do you bang? _____ yes _____ no
if no, did you ever? _____ yes _____ no

other family members in a gang include:

_____ none	_____ uncle	_____ aunt	_____ cousin
_____ brother	_____ nephew	_____ niece	_____ grandparent
_____ sister	_____ mother	_____ father	
_____ stepparent			

what level of approval does your family give to your gang membership?

_____ approve totally
_____ approve most of the time
_____ approve some of the time
_____ do not approve most of the time
_____ do not approve at all

if your family does not approve totally, what activity causes them to withhold approval? _____

which family member gives your gang membership
the most approval _____
the least approval _____

Do you have tattoos? _____ yes _____ no

if yes, how many? _____

where did you have them done? _____ professional #_____
_____ friend #_____
_____ self #_____

was the needle used a new one? _____ yes _____ no

_____ approve totally
_____ approve most of the time
_____ approve some of the time
_____ do not approve most of the time
_____ do not approve at all

if your family does not approve totally, what activity causes them to withhold approval? _____

which family member gives your gang membership
the most approval _____
the least approval _____

Do you have tattoos? _____ yes _____ no

if yes, how many? _____

where did you have them done? _____ professional #_____
_____ friend #_____
_____ self #_____

was the needle used a new one? _____ yes _____ no

if no, was the needle cleaned with bleach while you watched? _____ yes _____ no

do you have body piercings? _____ yes _____ no

if yes, where? _____ ear # _____
_____ lip # _____
_____ nipple # _____
_____ nose # _____
_____ other # _____
type _____

where did you have them done: _____ professional
_____ friend
_____ self

was the needle used a new one?
_____ yes _____ no

if no, was the needle cleaned with bleach while you watched?
_____ yes _____ no

Have you ever required blood transfusions?
_____ yes _____ no

If so, how many? _____
for what?
_____ accident
_____ hemophilia
_____ sickle cell
_____ hepatitis
_____ surgery
_____ other

		# drinks per day	#drinks per month
Do you drink beer?	_____	_____	_____
wine	_____	_____	_____
liquor	_____	_____	_____
type	_____	_____	_____
	_____	_____	_____

have never _____
quit _____

bleach while you watched? _____ yes _____ no

Have you ever required blood transfusions? _____ yes _____ no

If so, how many? _____
for what? _____ accident
_____ hemophilia
_____ sickle cell
_____ hepatitis
_____ surgery
_____ other

		# drinks per day	#drinks per month
Do you drink beer?	_____	_____	_____
wine	_____	_____	_____
liquor	_____	_____	_____
type	_____	_____	_____
	_____	_____	_____

have never _____
quit _____
how long _____ days _____ months _____ years
what was your favorite drink? _____

do you drink and drive? _____ yes _____ no

if yes, is this on a regular basis? _____
frequently? _____
not often? _____

if you drink, do you ever get drunk? _____ daily
_____ weekly
_____ monthly
_____ occasionally
_____ never

if you drink,

how old were you when you had your first drink? _____
what did you drink that time? _____

how old were you when you began to drink
on a regular basis? _____

Have you used:

	times	daily	2-3	weekly	monthly	occasionally	never
marijuana	____	____	____	____	____	____	____
crack/rock	____	____	____	____	____	____	____
amphet-amines	____	____	____	____	____	____	____
heroin	____	____	____	____	____	____	____
PCP	____	____	____	____	____	____	____
cocaine	____	____	____	____	____	____	____
LSD	____	____	____	____	____	____	____
mushrooms	____	____	____	____	____	____	____
inhalants	____	____	____	____	____	____	____
poppers	____	____	____	____	____	____	____
steroids	____	____	____	____	____	____	____
cough medicine	____	____	____	____	____	____	____
other: ____	____	____	____	____	____	____	____

Have you ever exchanged sex for drugs? ____ yes ____ no

drugs for sex? ____ yes ____ no

Have you used:

	times	daily	2-3	weekly	monthly	occasionally	never
marijuana	____	____	____	____	____	____	____
crack/rock	____	____	____	____	____	____	____
amphet-amines	____	____	____	____	____	____	____
heroin	____	____	____	____	____	____	____
PCP	____	____	____	____	____	____	____
cocaine	____	____	____	____	____	____	____
LSD	____	____	____	____	____	____	____
mushrooms	____	____	____	____	____	____	____
inhalants	____	____	____	____	____	____	____
poppers	____	____	____	____	____	____	____
steroids	____	____	____	____	____	____	____
cough medicine	____	____	____	____	____	____	____
other: ____	____	____	____	____	____	____	____

Have you ever exchanged sex for drugs? ____ yes ____ no

drugs for sex? ____ yes ____ no

Have you ever exchanged sex for alcohol? ____ yes ____ no

alcohol for sex? ____ yes ____ no

Have you ever shared an I.V. drug needle with someone? ____ yes ____ no

If yes, how many times? _____

Have you had sex with another person? ____ yes ____ no

Age of first sexual experience _____
Number of lifetime partners: female _____
male _____
Number of vaginal sex partners: female _____
male _____
Number of rectal sex partners: female _____
male _____
Number of oral sex partners: female _____
male _____

Number of times that you have had sex with a prostitute:

female: _____ never
_____ 25%
_____ 50%
_____ 75%
_____ always

male: _____ never
_____ 25%
_____ 50%
_____ 75%
_____ always

Number of times that you have exchanged sex for favors/drugs/money:

female: _____ never
_____ 25%
_____ 50%
_____ 75%
_____ always

male _____

Number of times that you have had sex with a prostitute:

female: _____ never
_____ 25%
_____ 50%
_____ 75%
_____ always

male: _____ never
_____ 25%
_____ 50%
_____ 75%
_____ always

Number of times that you have exchanged sex for favors/drugs/money:

female: _____ never
_____ 25%
_____ 50%
_____ 75%
_____ always

male: _____ never
_____ 25%
_____ 50%
_____ 75%
_____ always

Do you use a condom:	oral sex	vaginal sex	anal sex
100% time	_____	_____	_____
75%	_____	_____	_____
50%	_____	_____	_____
25%	_____	_____	_____
never	_____	_____	_____
do/have Not	_____	_____	_____

if you use a condom, do you use: latex _____
animal skin _____
other synthetic _____
spermicide treated _____
lubricated _____

have you ever had sex with an IV drug user? _____ yes _____ no

if yes, did you use a condom? _____ yes _____ no

have you ever had sex with a person infected with the HIV (aids) virus:

_____ yes _____ no _____ D.K.

if yes, did you use a condom? _____ yes _____ no

Are you a parent? _____ yes _____ no

number of children: _____
are you currently pregnant? _____ yes _____ no
is your girlfriend currently pregnant? _____ yes _____ no
number of previous pregnancies (self): _____
(girlfriend): _____

have you ever had sex with an IV drug user? _____ yes _____ no

if yes, did you use a condom? _____ yes _____ no

have you ever had sex with a person infected with the HIV (aids) virus:

_____ yes _____ no _____ D.K.

if yes, did you use a condom? _____ yes _____ no

Are you a parent? _____ yes _____ no

number of children: _____
are you currently pregnant? _____ yes _____ no
is your girlfriend currently pregnant? _____ yes _____ no
number of previous pregnancies (self): _____
(girlfriend): _____

have you ever had a sexually transmitted disease (syphilis, herpes, gonorrhea, chlamydia, etc.)? _____ yes _____ no

if yes, number of times: _____
number of times treated _____

What do you think are the chances that you will get the Aids virus?

none _____
few _____
some _____
many _____
most _____

why?

_____ multiple sex partners
_____ unprotected sex
_____ IV drug use
_____ partner IV drug user
_____ homo/bisexual partner
_____ other:_____

have you ever received sex education instruction?

_____ yes _____ no

if yes, where?_____

when? _____

have you ever received AIDS education instruction?

_____ yes _____ no

if yes, where?_____

when? _____

will you require that your children receive AIDS education?

_____ yes _____ no

if yes, at what age? _____

if yees, required for girls only _____

boys only _____

both sexes _____

have you ever received sex education instruction?

yes _____ no _____

if yes, where? _____

when? _____

have you ever received AIDS education instruction?

yes _____ no _____

if yes, where? _____

when? _____

will you require that your children receive AIDS education?

yes _____ no _____

if yes, at what age? _____

if yees, required for girls only _____

boys only _____

both sexes _____

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Advance Data

From Vital and Health Statistics of the National Center for Health Statistics

Appendix B

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AIDS Knowledge and Attitudes for July–September 1990

Provisional Data From the National Health Interview Survey

by Patricia F. Adams and Ann M. Hardy, Dr.P.H., Division of Health Interview Statistics

Introduction

The National Center for Health Statistics has included questions about acquired immunodeficiency syndrome (AIDS) in the National Health Interview Survey (NHIS) since 1987. Data concerning the adult population's knowledge and attitudes about AIDS and transmission of the human immunodeficiency virus (HIV) are collected to assist in planning educational programs. Since the initiation of the NHIS AIDS survey, its scope has widened to include many questions on HIV testing and blood donation experience. In addition to assessing self-perceived risk of becoming infected with HIV, the survey includes a general risk behavior question similar

contained in the Technical notes at the end of this report.

The first AIDS Knowledge and Attitudes survey was in the field from August through December 1987. Provisional results of that survey were published monthly in *Advance Data From Vital and Health Statistics* (Nos. 146, 148, 150, 151, and 153). During the first 4 months of 1988, the NHIS questionnaire was revised to meet program needs at that time. The revised AIDS Knowledge and Attitudes Survey entered the field in May 1988. Provisional findings for the remainder of 1988 were published periodically (*Advance Data From Vital and Health Statistics*, Nos. 160, 161, 163, 164, 167, and 175); in addition, two special reports with a focus on

186). For 1990 the AIDS questionnaire was revised again, with added emphasis on HIV testing procedures and on the distinction between testing in connection with blood donation and for other reasons. Provisional survey findings have been published on a quarterly basis in *Advance Data From Vital and Health Statistics*, Nos. 193 and 195, and will continue to be published on a quarterly basis for 1990.

The NHIS AIDS questionnaires were developed by the National Center for Health Statistics and an interagency task force created by the Public Health Service Health Data Policy Committee. The task force included representatives from the

AIDS Knowledge and Attitudes for July–September 1990

Provisional Data From the National Health Interview Survey

by Patricia F. Adams and Ann M. Hardy, Dr.P.H., Division of Health Interview Statistics

Introduction

The National Center for Health Statistics has included questions about acquired immunodeficiency syndrome (AIDS) in the National Health Interview Survey (NHIS) since 1987. Data concerning the adult population's knowledge and attitudes about AIDS and transmission of the human immunodeficiency virus (HIV) are collected to assist in planning educational programs. Since the initiation of the NHIS AIDS survey, its scope has widened to include many questions on HIV testing and blood donation experience. In addition to assessing self-perceived risk of becoming infected with HIV, the survey includes a general risk behavior question similar to that asked by the Red Cross of potential blood donors. At various points in its history, the AIDS survey has also been used as a tool for evaluating public awareness campaigns and for assessing the public's willingness to participate in a national seroprevalence survey. Information on the NHIS AIDS survey sample is contained in the Technical notes at the end of this report.

The first AIDS Knowledge and Attitudes survey was in the field from August through December 1987. Provisional results of that survey were published monthly in *Advance Data From Vital and Health Statistics* (Nos. 146, 148, 150, 151, and 153). During the first 4 months of 1988, the NHIS questionnaire was revised to meet program needs at that time. The revised AIDS Knowledge and Attitudes Survey entered the field in May 1988. Provisional findings for the remainder of 1988 were published periodically (*Advance Data From Vital and Health Statistics*, Nos. 160, 161, 163, 164, 167, and 175); in addition, two special reports with a focus on minority populations were published from the 1988 data (*Advance Data From Vital and Health Statistics*, Nos. 165 and 166).

The 1988 AIDS questionnaire was used without modification throughout 1989, and results were published on a quarterly basis (*Advance Data From Vital and Health Statistics*, Nos. 176, 179, 183, and 186). For 1990 the AIDS questionnaire was revised again, with added emphasis on HIV testing procedures and on the distinction between testing in connection with blood donation and for other reasons. Provisional survey findings have been published on a quarterly basis in *Advance Data From Vital and Health Statistics*, Nos. 193 and 195, and will continue to be published on a quarterly basis for 1990.

The NHIS AIDS questionnaires were developed by the National Center for Health Statistics and an interagency task force created by the Public Health Service Health Data Policy Committee. The task force included representatives from the Centers for Disease Control; Office of the Assistant Secretary for Health; National AIDS Program Office; National Institutes of Health; Alcohol, Drug Abuse and Mental Health Administration; Food and Drug Administration; and the Health Resources and Services Administration.

The *Advance Data* reports describing the NHIS AIDS data have

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Public Health Service
Centers for Disease Control
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CDC

been restricted to simple descriptive statistics to facilitate their timely release. Thus these reports do not attempt to explain or interpret differences among population subgroups or to examine relationships among various measures of knowledge and behavior. The NHIS AIDS data bases permit more complex analyses than those presented in this series of *Advance Data* reports, and further exploration of the data is encouraged. Public use data tapes of the 1987, 1988, and 1989 AIDS Knowledge and Attitudes surveys are available at this time.

This report presents provisional data for July–September 1990 for most items included in the NHIS AIDS questionnaire. Table 1 displays percent distributions of persons 18 years of age and over by response categories, according to age, sex, race and ethnicity, and education. In most cases, the actual questions asked of the respondents are reproduced verbatim in table 1 along with the coded response categories. In a few cases, questions or response categories have been rephrased or combined for clearer or more concise presentation or results. Refusals and other nonresponse categories (generally less than 1 percent of total responses) are excluded from the denominator in the calculation of estimates, but responses of "don't know" are included. The NHIS AIDS questionnaire uses the phrase "the AIDS virus" rather than "HIV," because it is felt to be more widely recognized and understood. In this report the two terms are used synonymously.

The population subgroups used in presenting the 1990 NHIS AIDS data differ from those used in previous reports. In reports based on the 1987–89 surveys, two racial categories and earlier NHIS AIDS *Advance Data* reports. In addition, the revisions in the questionnaire, whether in actual wording or in context and location of questions, must be considered when interpreting trend data.

Selected findings

The following highlights describe survey results of the NHIS AIDS Knowledge and Attitudes Survey for the period July–September 1990. Unless otherwise noted in the text, all measures described remained stable over this period. All differences cited in the text are statistically significant at the .05 level. Table II shows provisional estimates of the standard errors associated with these results.

General AIDS knowledge— General knowledge about AIDS and HIV was ascertained through a series of statements about the general characteristics of the disease and how it is transmitted. Respondents were asked to classify each statement as definitely true, probably true, probably false, or definitely false. Overall the measures of general knowledge about AIDS and HIV were similar between the second and third quarters of 1990. For example, the percent of adults who stated that it is definitely true that AIDS can damage the brain remained steady at 42 percent compared to 43 percent; and the percent who thought it is definitely true that a person can be infected with the AIDS virus and not have AIDS was 64 compared to 65 percent.

Levels of knowledge about the three major modes of HIV transmission also remained high. For the third quarter the proportions of adults who thought it is definitely true that HIV can be transmitted HIV transmission through needle sharing was asked in a separate series of questions with different response categories.)

Despite the overall similarities in knowledge, there was a slight decrease in one area. For this 3-month period 67 percent of U.S. adults 18 years of age and over realized that it is definitely false that there is a vaccine for the AIDS virus; a decrease from 69 percent for the previous 3-month period. Overall there has been a decrease in 1990 compared with 1989 in proportions with the definitive correct answer to this question. This may reflect failure to distinguish between a vaccine and drugs that are used in treatment of AIDS or HIV, for example, zidovudine (AZT), or it may result from publicity concerning progress towards development of a vaccine.

During the third quarter of 1990, as in all previous quarters, general knowledge about AIDS varied by demographic and socioeconomic characteristics. Persons aged 50 years and over were less knowledgeable than younger persons. Knowledge increased directly with number of years of school completed. For five of the nine measures of general AIDS knowledge examined, non-Hispanic white adults were more likely than non-Hispanic black or Hispanic adults to respond correctly. For three of the remaining four measures, knowledge was lower among Hispanic adults; for one measure (awareness that HIV can damage the brain), non-Hispanic black adults (50 percent) were the most knowledgeable compared with non-Hispanic white (43 percent) and Hispanic adults (44 percent). There was no consistent difference by gender in general AIDS knowledge.

Two new items regarding general AIDS knowledge were added to the

of the data is encouraged. Public use data tapes of the 1987, 1988, and 1989 AIDS Knowledge and Attitudes surveys are available at this time.

This report presents provisional data for July–September 1990 for most items included in the NHIS AIDS questionnaire. Table 1 displays percent distributions of persons 18 years of age and over by response categories, according to age, sex, race and ethnicity, and education. In most cases, the actual questions asked of the respondents are reproduced verbatim in table 1 along with the coded response categories. In a few cases, questions or response categories have been rephrased or combined for clearer or more concise presentation or results. Refusals and other nonresponse categories (generally less than 1 percent of total responses) are excluded from the denominator in the calculation of estimates, but responses of "don't know" are included. The NHIS AIDS questionnaire uses the phrase "the AIDS virus" rather than "HIV," because it is felt to be more widely recognized and understood. In this report the two terms are used synonymously.

The population subgroups used in presenting the 1990 NHIS AIDS data differ from those used in previous reports. In reports based on the 1987–89 surveys, two racial categories were shown—white and black. The 1990 reports show three categories that reflect both race and ethnic origin—non-Hispanic white, non-Hispanic black, and Hispanic. This change, which reflects the increasing demand for information about the Hispanic population, means that estimates by race cannot be compared directly between the 1990 survey results of the NHIS AIDS Knowledge and Attitudes Survey for the period July–September 1990. Unless otherwise noted in the text, all measures described remained stable over this period. All differences cited in the text are statistically significant at the .05 level. Table II shows provisional estimates of the standard errors associated with these results.

General AIDS knowledge—General knowledge about AIDS and HIV was ascertained through a series of statements about the general characteristics of the disease and how it is transmitted. Respondents were asked to classify each statement as definitely true, probably true, probably false, or definitely false. Overall the measures of general knowledge about AIDS and HIV were similar between the second and third quarters of 1990. For example, the percent of adults who stated that it is definitely true that AIDS can damage the brain remained steady at 42 percent compared to 43 percent; and the percent who thought it is definitely true that a person can be infected with the AIDS virus and not have AIDS was 64 compared to 65 percent.

Levels of knowledge about the three major modes of HIV transmission also remained high. For the third quarter the proportions of adults who thought it is definitely true that HIV can be transmitted through sexual intercourse (86 percent) and from a pregnant woman to her child (84 percent) were similar to the second quarter (87 percent and 85 percent, respectively). The proportion of adults who thought it very likely that HIV can be transmitted by sharing needles for drug use remained stable at 95 percent. (Knowledge about previous 3-month period. Overall there has been a decrease in 1990 compared with 1989 in proportions with the definitive correct answer to this question. This may reflect failure to distinguish between a vaccine and drugs that are used in treatment of AIDS or HIV, for example, zidovudine (AZT), or it may result from publicity concerning progress towards development of a vaccine.

During the third quarter of 1990, as in all previous quarters, general knowledge about AIDS varied by demographic and socioeconomic characteristics. Persons aged 50 years and over were less knowledgeable than younger persons. Knowledge increased directly with number of years of school completed. For five of the nine measures of general AIDS knowledge examined, non-Hispanic white adults were more likely than non-Hispanic black or Hispanic adults to respond correctly. For three of the remaining four measures, knowledge was lower among Hispanic adults; for one measure (awareness that HIV can damage the brain), non-Hispanic black adults (50 percent) were the most knowledgeable compared with non-Hispanic white (43 percent) and Hispanic adults (44 percent). There was no consistent difference by gender in general AIDS knowledge.

Two new items regarding general AIDS knowledge were added to the 1990 NHIS AIDS survey. One was a question asking whether the respondent had ever heard the AIDS virus referred to as "HIV." Almost three-fourths of adults were familiar with this term as of July–September 1990, but this proportion was much lower for persons 50 years of age and over (62 percent) and for persons with less than 12 years of school

(48 percent). Also, the proportion of Hispanic adults who recognized this term (51 percent) was much lower than the proportion for non-Hispanic white adults (77 percent) or non-Hispanic black adults (69 percent). Since approximately 25 percent of the Hispanic households sampled in the first half of 1990 required at least some translation of the NHIS survey into Spanish, this lower level of recognition may be due, in part, to unfamiliarity with the English term "HIV" among Spanish-speaking Hispanic adults. The second new item in the survey was a statement that there are drugs available to extend the life of a person infected with HIV. Slightly less than half of all adults (45 percent) categorized this statement as definitely true; an additional 27 percent stated it as probably true.

Self-assessed knowledge about AIDS also remained stable for the second and third quarters of 1990. In the third quarter, 19 percent of adults stated they knew a lot about AIDS; in the second quarter, this proportion was identical. The proportion of adults who stated they knew nothing about AIDS also remained virtually unchanged (10 percent). While these proportions did not change in 1990, they represent a decline from the previous year. Although this question is worded the same in 1990 as in preceding years, its location was

example, working with someone with AIDS, using public toilets, and so forth. Respondents were offered five response options for the likelihood of transmission—very likely, somewhat likely, somewhat unlikely, very unlikely, and definitely not possible. Both "very unlikely" and "definitely not possible" were interpreted as correct responses, even for forms of contact where our current understanding of the virus indicates that there definitely is no possibility of transmission. The decision to accept "very unlikely" as correct was based on the large numbers of respondents who chose that option, seemingly unwilling to commit themselves to the concept of a zero probability. As has been true since 1987, the results for July–September 1990 indicated that many misperceptions about HIV transmission remain. The proportion of adults who assessed the risk of transmission as "very unlikely" or "definitely not possible" varied from less than half for transmission by means of insect bites or contact with the saliva of an infected individual (sharing eating utensils or being sneezed or coughed on) to almost three-fourths for working near or attending school with someone with HIV. Most of these measures remained similar between April–June and July–September 1990.

As with general AIDS knowledge, there were demographic and socioeconomic differentials in

who reported that their children had received instruction in school about AIDS decreased slightly, from 75 to 72 percent for the same time period. Eighty-seven percent of adults stated that they had received information about AIDS or HIV in the month preceding the NHIS AIDS survey. The most commonly reported sources of information were television (cited by 75 percent of adults), newspapers (51 percent), magazines (41 percent), and radio (28 percent). Each of these sources showed a decline from the previous quarter—80, 57, 45, and 33 percent, respectively.

Sources of AIDS information did not differ significantly in most areas by race or ethnicity. Newspapers and magazines were cited most often by non-Hispanic white individuals than minorities. There were three sources of information that were reported more often by non-Hispanic black than by non-Hispanic white individuals—mass transit displays (signs in buses and subways), health department brochures, and brochures distributed at the workplace.

Blood donation and testing—There was no change in blood donation experience between the second and third quarters of 1990. Data for the third quarter indicated that 40 percent of adults had ever donated blood, 16 percent had donated blood since March 1985 (when blood donations were first routinely tested for HIV), and 7 percent had donated blood in the

recognition may be due, in part, to unfamiliarity with the English term "HIV" among Spanish-speaking Hispanic adults. The second new item in the survey was a statement that there are drugs available to extend the life of a person infected with HIV. Slightly less than half of all adults (45 percent) categorized this statement as definitely true; an additional 27 percent stated it as probably true.

Self-assessed knowledge about AIDS also remained stable for the second and third quarters of 1990. In the third quarter, 19 percent of adults stated they knew a lot about AIDS; in the second quarter, this proportion was identical. The proportion of adults who stated they knew nothing about AIDS also remained virtually unchanged (10 percent). While these proportions did not change in 1990, they represent a decline from the previous year. Although this question is worded the same in 1990 as in preceding years, its location was changed in 1990 so that it is now the first question asked in the survey. In general the sociodemographic differentials in objective measures of knowledge were generally consistent with those in self-assessed knowledge about AIDS. The population subgroups most likely to state that they know a lot about AIDS were persons under 50 years of age and those with more than 12 years of school.

Misinformation about HIV transmission—The NHIS AIDS questionnaire asked respondents to estimate the risk of HIV transmission associated with several forms of casual contact with infected or potentially infected individuals, for

that there definitely is no possibility of transmission. The decision to accept "very unlikely" as correct was based on the large numbers of respondents who chose that option, seemingly unwilling to commit themselves to the concept of a zero probability. As has been true since 1987, the results for July–September 1990 indicated that many misperceptions about HIV transmission remain. The proportion of adults who assessed the risk of transmission as "very unlikely" or "definitely not possible" varied from less than half for transmission by means of insect bites or contact with the saliva of an infected individual (sharing eating utensils or being sneezed or coughed on) to almost three-fourths for working near or attending school with someone with HIV. Most of these measures remained similar between April–June and July–September 1990.

As with general AIDS knowledge, there were demographic and socioeconomic differentials in misperceptions about HIV transmission. Adults 50 years of age and over were more likely than younger adults to be misinformed, and non-Hispanic black and Hispanic individuals generally had more misperceptions than did non-Hispanic white individuals. The level of misinformation decreased with increasing educational attainment. Again, there was no consistent differential by gender.

Information and communication about AIDS—From April–June to July–September 1990, the proportion of adults who reported discussing AIDS with their children aged 10–17 years was similar, 68 and 67 percent, respectively. However, the proportion

(91 percent), magazines (41 percent), and radio (28 percent). Each of these sources showed a decline from the previous quarter—80, 57, 45, and 33 percent, respectively.

Sources of AIDS information did not differ significantly in most areas by race or ethnicity. Newspapers and magazines were cited most often by non-Hispanic white individuals than minorities. There were three sources of information that were reported more often by non-Hispanic black than by non-Hispanic white individuals—mass transit displays (signs in buses and subways), health department brochures, and brochures distributed at the workplace.

Blood donation and testing—There was no change in blood donation experience between the second and third quarters of 1990. Data for the third quarter indicated that 40 percent of adults had ever donated blood, 16 percent had donated blood since March 1985 (when blood donations were first routinely tested for HIV), and 7 percent had donated blood in the preceding year. Multiple donations were common among those who had donated blood. Of the 16 percent of adults who had donated blood since March 1985, one-half, or 8 percent, donated blood three times or more. In the year preceding the interview, 4 percent of adults had donated blood once, 2 percent had donated blood twice, and 1 percent had donated blood three times or more.

Seventy-nine percent of U.S. adults had heard of the blood test to detect HIV antibodies, the same percent reported for the second quarter of 1990. Sixty-six percent, or five-sixths of those familiar with the blood test, knew blood donations are

routinely tested for HIV. This was a slight decrease from 68 percent reported during the previous quarter. Two percent of the persons who had donated blood since March 1985 (an estimated 692,000 individuals) reportedly did so at least in part to be tested for HIV.

Not counting testing performed in conjunction with blood donation, 10 percent of U.S. adults reported having had their blood tested for HIV antibodies. Testing as a result of blood donation occurred in the 16 percent of adults who had donated blood since March 1985. These figures include 2 percent who were tested because of blood donation and for other means. Overall an estimated 24 percent of the adult population has been tested for HIV antibodies. The total percent tested in the first three quarters of 1990 (23–24 percent) represents a slight increase over the estimate of 21 percent from the last quarter of 1989. (The revised estimated total percent of adults tested for HIV for the first and second quarters of 1990 is 23 percent for each.)

The proportion of adults who had been tested exclusive of blood donation declined sharply with age, from 16 percent of persons 18–29 years of age to 13 and 4 percent, respectively, of those 30–49 years and 50 years of age and over. There was no statistically significant difference between men and women in percent tested. Hispanic adults were more likely than non-Hispanic

donation). In addition, 8 percent were tested as a requirement for life insurance, 7 percent for immigration (cited by 39 percent of Hispanic adults who were tested exclusive of blood donation), 6 percent for employment, 3 percent for health insurance, and 12 percent were tested for other reasons. Individuals may have cited more than one reason for a single test (for example, for both employment and health insurance) or may have had more than one required test; thus the sum of the individual reasons exceeds the proportion of persons with at least one required blood test.

One-third of persons tested for HIV antibodies apart from blood donations—including both voluntary and required testing—had their last blood test at a doctor's office or a Health Maintenance Organization (HMO), and about one-fourth (24 percent) were tested at a hospital, outpatient clinic, or emergency room. Eight percent were tested at military induction or service sites, and another 8 percent were tested at public health departments. Only 3 percent were tested at designated AIDS clinics or counseling and testing sites. Less than half, 43 percent, were counseled about AIDS and HIV before the test was administered. Almost four-fifths (79 percent) received their test results. Of those that did not receive their results, nearly two-fifths (38 percent) reportedly wanted them

persons who had been tested previously has not yet been analyzed, but it is likely that some are repeaters. This figure, which has remained fairly stable over the past year, was more than two times higher for non-Hispanic black than for non-Hispanic white adults. Twelve percent of non-Hispanic black adults reported plans to be tested compared to 5 percent of non-Hispanic white adults.

Of persons who plan to be tested, almost two-thirds stated that they would be tested voluntarily because they personally wanted to know if they are infected. Twenty-five percent plan to be tested as part of blood donation, 12 percent as part of a hospital or surgical procedure, and 10 percent cited the need for testing as a requirement for a job or the military. Some individuals reported more than one reason for anticipated testing. In general the locations at which persons plan to be tested are somewhat similar to those reported for tests already conducted, with private doctors or HMOs and hospital emergency rooms or clinics accounting for over half of the locations (38 and 18 percent, respectively).

Risk of HIV infection—The third-quarter 1990 NHIS AIDS survey results indicated that 5 percent of U.S. adults, an estimated 10 million persons, received blood transfusions between 1977 and 1985. This is the

antibodies. Testing as a result of blood donation occurred in the 16 percent of adults who had donated blood since March 1985. These figures include 2 percent who were tested because of blood donation and for other means. Overall an estimated 24 percent of the adult population has been tested for HIV antibodies. The total percent tested in the first three quarters of 1990 (23–24 percent) represents a slight increase over the estimate of 21 percent from the last quarter of 1989. (The revised estimated total percent of adults tested for HIV for the first and second quarters of 1990 is 23 percent for each.)

The proportion of adults who had been tested exclusive of blood donation declined sharply with age, from 16 percent of persons 18–29 years of age to 13 and 4 percent, respectively, of those 30–49 years and 50 years of age and over. There was no statistically significant difference between men and women in percent tested. Hispanic adults were more likely than non-Hispanic white adults to have been tested outside of blood donations, 17 percent compared to 9 percent. The probability of having been tested showed no differences with education.

Of persons tested exclusive of blood donation, 49 percent stated that all their tests were required, that is, conducted as a part of an activity that includes mandatory blood testing. For 47 percent all their tests were voluntary. Three percent had both required and voluntary tests. The most commonly cited reasons for required tests were hospitalization or surgery and military induction or service (reported by 9 percent of persons tested outside of blood

both employment and health insurance) or may have had more than one required test; thus the sum of the individual reasons exceeds the proportion of persons with at least one required blood test.

One-third of persons tested for HIV antibodies apart from blood donations—including both voluntary and required testing—had their last blood test at a doctor's office or a Health Maintenance Organization (HMO), and about one-fourth (24 percent) were tested at a hospital, outpatient clinic, or emergency room. Eight percent were tested at military induction or service sites, and another 8 percent were tested at public health departments. Only 3 percent were tested at designated AIDS clinics or counseling and testing sites. Less than half, 43 percent, were counseled about AIDS and HIV before the test was administered. Almost four-fifths (79 percent) received their test results. Of those that did not receive their results, nearly two-fifths (38 percent) reportedly wanted them. Of those who received their test results, 29 percent were counseled about prevention of HIV transmission at the time the results were provided. Sixty-three percent received their test results in person compared to smaller proportions who received their test results by telephone (17 percent), mail (13 percent), or by other means (6 percent). The vast majority (92 percent) of persons tested for HIV felt that their tests were handled properly in terms of confidentiality of test results.

According to the NHIS AIDS data for this quarter, 6 percent of U.S. adults reportedly plan to be tested for HIV antibodies in the next 12 months. The proportion of these adults.

Of persons who plan to be tested, almost two-thirds stated that they would be tested voluntarily because they personally wanted to know if they are infected. Twenty-five percent plan to be tested as part of blood donation, 12 percent as part of a hospital or surgical procedure, and 10 percent cited the need for testing as a requirement for a job or the military. Some individuals reported more than one reason for anticipated testing. In general the locations at which persons plan to be tested are somewhat similar to those reported for tests already conducted, with private doctors or HMOs and hospital emergency rooms or clinics accounting for over half of the locations (38 and 18 percent, respectively).

Risk of HIV infection—The third-quarter 1990 NHIS AIDS survey results indicated that 5 percent of U.S. adults, an estimated 10 million persons, received blood transfusions between 1977 and 1985. This is the period when HIV is thought to have entered the United States and when routine screening of blood donations began. Slightly less than half of the Nation's adults think the blood supply is now safe for transfusions.

During July–September 1990 the proportion of adults who think condoms are very effective in preventing transmission of HIV was 26 percent, similar to figures during the two previous quarters in 1990. Perceptions about effectiveness varied by race and ethnicity. Twenty-one percent of Hispanic adults reported condoms are very effective in preventing transmission of HIV compared to 27 percent for both non-Hispanic black and non-Hispanic white adults. The proportion who did

not know how effective condoms are in preventing transmission of HIV was higher for non-Hispanic black (18 percent) than for non-Hispanic white adults (13 percent).

Eighty percent of adults felt there was no chance of their having been infected with HIV, and 15 percent said there was a low chance. The proportion who thought there was a medium or high chance of already being infected was 3 percent. The proportion of persons who thought there was no chance of their becoming infected with HIV in the future was similar for the second and third quarters of 1990 (73 and 72 percent, respectively). As of this quarter, 21 percent of adults believed that they had a low chance of becoming infected, and 4 percent cited a medium or high chance. Only 2 percent of adults reported being in any of the behavior categories associated with a high risk of HIV infection. This proportion has remained stable since the risk behavior question was added to the NHIS AIDS questionnaire in 1988.

As of July–September 1990, about one out of every seven adults (15 percent) knew someone with AIDS or HIV, the same figure as in the second quarter of 1990. This proportion was higher for persons under 50 years of age than for those aged 50 years and over but did not vary by sex. However, the proportion was higher among non-Hispanic black (19 percent) than among non-Hispanic white adults (15 percent). The proportion of adults who reported knowing someone with AIDS or HIV increased sharply with number of years of school, from 9 percent of persons with less than 12 years of school to 21 percent of those with more than 12 years of school.

Symbols

–	Quantity zero
0	Quantity more than zero but less than 0.05

being infected was 3 percent. The proportion of persons who thought there was no chance of their becoming infected with HIV in the future was similar for the second and third quarters of 1990 (73 and 72 percent, respectively). As of this quarter, 21 percent of adults believed that they had a low chance of (15 percent) knew someone with AIDS or HIV, the same figure as in the second quarter of 1990. This proportion was higher for persons under 50 years of age than for those aged 50 years and over but did not vary by sex. However, the proportion was higher among non-Hispanic black (19 percent) than among

Symbols

–	Quantity zero
0	Quantity more than zero but less than 0.05

Suggested citation

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Table 1. Provisional estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, July–September 1990

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in technical notes]

AIDS knowledge or attitude	Total	Age			Sex		Race or ethnicity			Education		
		18–29 years	30–49 years	50 years and over	Male	Female	Non-Hispanic White	Non-Hispanic Black	Hispanic	Less than 12 years	12 years	More than 12 years
	Percent distribution											
Total	100	100	100	100	100	100	100	100	100	100	100	100
1. How much would you say you know about AIDS?												
A lot	19	22	23	13	18	20	19	18	21	10	15	28
Some	46	52	53	35	45	47	49	38	35	30	48	53
A little	24	21	21	30	25	23	23	29	28	32	28	16
Nothing	10	5	3	22	11	10	9	15	15	28	8	3
Don't know	0	0	0	0	0	0	0	0	0	0	0	0
2. In the past month, have you received information about AIDS from any of these sources?[1]												
Television	75	75	76	74	76	75	75	75	78	72	75	77
Radio	28	32	32	21	32	25	29	27	28	20	27	34
Magazines	41	44	44	35	39	43	43	34	34	24	38	53
Newspapers	51	46	54	51	53	49	53	43	42	35	51	60
Street signs/billboards	10	15	11	5	12	8	10	13	11	7	9	13
Store displays/store distributed brochures	6	10	6	4	6	6	6	9	7	5	6	7
Bus/streetcar/subway displays	4	6	4	2	4	4	3	7	5	3	3	5
Health department brochures	17	24	17	11	15	19	16	20	18	11	16	20
Workplace distributed brochures	11	11	16	5	10	12	10	14	12	5	9	16
School distributed brochures	7	13	8	2	6	8	7	8	10	4	6	10
Church distributed brochures	4	4	5	3	4	4	3	6	7	4	4	4
Community organization	4	5	5	3	4	5	4	6	6	3	4	5
Friend/acquaintance	12	19	12	7	12	12	11	13	15	9	11	14
Other	3	4	3	2	3	3	3	2	3	1	2	5
Don't know	1	1	0	1	1	1	1	1	1	1	1	0
Received no AIDS information in past month	13	11	12	16	13	13	13	15	11	19	13	10
3. Have you heard the AIDS virus called HIV?												
Yes	73	77	81	62	72	75	77	69	51	48	73	88
No	24	22	18	34	25	23	21	27	46	47	25	11
Don't know	2	2	2	4	2	3	2	4	3	5	2	1
4a. AIDS can reduce the body's natural protection against disease.												
Definitely true	77	80	83	66	77	76	81	62	63	52	77	90
Probably true	12	9	10	15	12	11	10	14	20	19	13	6
Probably false	1	1	1	2	1	1	1	1	2	2	1	0
Definitely false	2	3	2	2	2	3	1	8	2	4	3	1
Don't know	8	7	4	15	8	8	7	15	12	23	7	2
4b. AIDS can damage the brain.												
Definitely true	43	42	46	42	44	43	43	50	44	39	42	47
Probably true	26	27	24	27	26	26	26	25	30	27	28	23
Probably false	7	9	8	5	7	7	8	4	7	4	7	9
Definitely false	4	5	5	2	4	4	4	3	4	3	3	5
Don't know	19	17	17	24	18	20	20	19	16	26	20	15
4c. AIDS is an infectious disease caused by a virus.												
Definitely true	70	77	76	56	70	69	70	71	64	54	69	79
Probably true	15	13	13	20	16	15	15	15	19	20	17	12
Probably false	2	1	1	3	1	2	2	1	2	2	2	1
Definitely false	3	2	3	3	2	3	3	3	1	2	3	3
Don't know	11	6	6	19	12	12						

	[illegible]	[illegible]	[illegible]	[illegible]	25	23	23	29	28	32	28	16
	Nothing	10	5	3	22	11	10	9	15	15	28	8	3
	Don't know	0	0	0	0	0	0	0	0	0	0	0	0
2.	In the past month, have you received information about AIDS from any of these sources?[1]												
	Television	75	75	76	74	76	75	75	75	78	72	75	77
	Radio	28	32	32	21	32	25	29	27	28	20	27	34
	Magazines	41	44	44	35	39	43	43	34	34	24	38	53
	Newspapers	51	46	54	51	53	49	53	43	42	35	51	60
	Street signs/billboards	10	15	11	5	12	8	10	13	11	7	9	13
	Store displays/store distributed brochures	6	10	6	4	6	6	6	9	7	5	6	7
	Bus/streetcar/subway displays	4	6	4	2	4	4	3	7	5	3	3	5
	Health department brochures	17	24	17	11	15	19	16	20	18	11	16	20
	Workplace distributed brochures	11	11	16	5	10	12	10	[illegible]	12	5	9	16
	School distributed brochures	7	13	8	2	6	8	7	8	10	4	6	10
	Church distributed brochures	4	4	5	3	4	4	3	6	7	4	4	4
	Community organization	4	5	5	3	4	5	4	6	6	3	4	5
	Friend/acquaintance	12	19	12	7	12	12	11	13	15	9	11	14
	Other	3	4	3	2	3	3	3	2	3	1	2	5
	Don't know	1	1	0	1	1	1	1	1	1	1	1	0
	Received no AIDS information in past month	13	11	12	16	13	13	13	15	11	19	13	10
3.	Have you heard the AIDS virus called HIV?												
	Yes	73	77	81	62	72	75	77	69	51	48	73	88
	No	24	22	18	34	25	23	21	27	46	47	25	11
	Don't know	2	2	2	4	2	3	2	4	3	5	2	1
4a.	AIDS can reduce the body's natural protection against disease.												
	Definitely true	77	80	83	66	77	76	81	62	63	52	77	90
	Probably true	12	9	10	15	12	11	10	14	20	19	13	6
	Probably false	1	1	1	2	1	1	1	1	2	2	1	0
	Definitely false	2	3	2	2	2	3	1	8	2	4	3	1
	Don't know	8	7	4	15	8	8	7	15	12	23	7	2
4b.	AIDS can damage the brain.												
	Definitely true	43	42	46	42	44	43	43	50	44	39	42	47
	Probably true	26	27	24	27	26	26	26	25	30	27	28	23
	Probably false	7	9	8	5	7	7	8	4	7	4	7	9
	Definitely false	4	5	5	2	4	4	4	3	4	3	3	5
	Don't know	19	17	17	24	18	20	20	19	16	26	20	15
4c.	AIDS is an infectious disease caused by a virus.												
	Definitely true	70	77	76	56	70	69	70	71	64	54	69	79
	Probably true	15	13	13	20	16	15	15	15	19	20	17	12
	Probably false	2	1	1	3	1	2	2	1	2	2	2	1
	Definitely false	3	2	3	3	2	3	3	3	1	2	3	3
	Don't know	11	6	6	19	10	11	10	11	13	22	10	5
4d.	A person can be infected with the AIDS virus and not have the disease AIDS.												
	Definitely true	65	68	72	54	63	66	68	61	50	46	63	76
	Probably true	16	15	15	19	18	15	16	14	23	18	18	14
	Probably false	3	3	2	3	3	3	2	2	4	5	3	1
	Definitely false	3	5	3	2	4	3	3	5	4	3	4	2
	Don't know	13	9	8	22	13	13	11	17	19	29	12	6
4e.	ANY person with the AIDS virus can pass it on to someone else through sexual intercourse.												
	Definitely true	86	89	89	80	84	88	88	86	78	78	87	90
	Probably true	10	8	9	12	11	8	9	8	15	13	10	8
	Probably false	0	1	0	0	0	0	0	1	0	0	0	1
	Definitely false	0	0	0	0	1	0	0	0	1	0	1	0
	Don't know	3	2	2	6	4	3	3	4	5	9	3	1
4f.	A pregnant women who has the AIDS virus can give it to her baby.												
	Definitely true	84	87	87	78	81	87	86	83	74	73	85	88
	Probably true	11	10	10	14	14	9	10	12	19	17	11	9
	Probably false	0	0	0	0	0	0	0	0	0	0	0	0
	Definitely false	0	0	0	0	0	0	0	1	0	0	0	–
	Don't know	4	3	3	7	5	4	4	5	7	9	4	2

See footnotes at end of table.

Table 1. Provisional estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, July–September 1990—Con.

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in technical notes]

AIDS knowledge or attitude	Total	Age			Sex		Race or ethnicity			Education		
		18–29 years	30–49 years	50 years and over	Male	Female	Non-Hispanic White	Non-Hispanic Black	Hispanic	Less than 12 years	12 years	More than 12 years
	Percent distribution											
4g. There are drugs available to treat AIDS or the AIDS virus which can lengthen the life of an infected person.												
Definitely true	45	46	50	38	45	45	47	42	33	29	43	55
Probably true	27	25	27	28	27	26	27	21	30	24	29	26
Probably false	5	6	5	4	5	5	5	5	3	5	5	5
Definitely false	6	8	6	5	7	5	5	9	9	8	7	5
Don't know	17	14	12	25	16	18	15	23	25	33	16	9
4h. There is a vaccine available to the public that protects a person from getting the AIDS virus.												
Definitely true	3	3	3	3	3	3	2	7	5	4	2	3
Probably true	4	5	3	4	4	4	3	6	8	6	4	2
Probably false	10	11	8	10	9	10	10	8	11	10	10	9
Definitely false	67	69	74	57	69	66	71	57	49	48	67	78
Don't know	16	13	11	25	15	18	14	22	28	32	16	9
4i. There is no cure for AIDS at present.												
Definitely true	85	85	88	80	84	85	87	80	74	74	85	90
Probably true	7	6	6	8	7	6	6	7	7	8	7	5
Probably false	1	2	1	1	1	1	1	2	1	2	2	1
Definitely false	2	2	1	2	2	2	1	2	2	1	2	1
Don't know	6	5	4	9	6	6	4	7	16	14	5	3
5. How likely do you think it is that a person will get AIDS or the AIDS virus infection from—												
5a. Working near someone with the AIDS virus?												
Very likely	2	2	2	3	2	2	2	5	4	4	3	1
Somewhat likely	6	5	6	7	6	6	6	7	8	8	6	5
Somewhat unlikely	9	10	9	9	9	9	9	8	14	9	10	8
Very unlikely	40	38	41	40	40	39	41	36	29	35	40	42
Definitely not possible	37	42	39	30	36	37	37	35	37	29	36	41
Don't know	6	4	4	12	6	7	5	9	8	15	6	3
5b. Eating in a restaurant where the cook has the AIDS virus?												
Very likely	6	5	5	7	5	6	5	9	6	8	6	4
Somewhat likely	18	17	17	20	19	18	18	20	18	21	20	15
Somewhat unlikely	13	16	13	12	14	13	13	11	16	11	14	14
Very unlikely	31	31	35	28	32	31	33	27	23	23	30	37
Definitely not possible	22	26	23	18	21	22	21	21	26	18	20	25
Don't know	10	5	7	17	9	10	9	12	12	19	10	5
5c. Sharing plates, forks, or glasses with someone who has the AIDS virus?												
Very likely	10	9	10	11	10	10	10	13	10	13	11	8
Somewhat likely	21	20	20	24	23	20	21	23	22	24	23	18
Somewhat unlikely	13	15	13	12	13	13	13	11	14	11	13	14
Very unlikely	27	26	30	24	27	26	28	22	21	20	25	32
Definitely not possible	[illegible]											

Probably true	27	25	27	28	27	26	27	21	30	24	29	26
Probably false	5	6	5	4	5	5	5	5	3	5	5	5
Definitely false	6	8	6	5	7	5	5	9	9	8	7	5
Don't know	17	14	12	25	16	18	15	23	25	33	16	9
4h. There is a vaccine available to the public that protects a person from getting the AIDS virus.												
Definitely true	3	3	3	3	3	3	2	7	5	4	2	3
Probably true	4	5	3	4	4	4	3	6	8	6	4	2
Probably false	10	11	8	10	9	10	10	8	11	10	10	9
Definitely false	67	69	74	57	69	66	71	57	49	48	67	78
Don't know	16	13	11	25	15	18	14	22	28	32	16	9
4i. There is no cure for AIDS at present.												
Definitely true	85	85	88	80	84	85	87	80	74	74	85	90
Probably true	7	6	6	8	7	6	6	7	7	8	7	5
Probably false	1	2	1	1	1	1	1	2	1	2	2	1
Definitely false	2	2	1	2	2	2	1	2	2	1	2	1
Don't know	6	5	4	9	6	6	4	7	16	14	5	3
5. How likely do you think it is that a person will get AIDS or the AIDS virus infection from—												
5a. Working near someone with the AIDS virus?												
Very likely	2	2	2	3	2	2	2	5	4	4	3	1
Somewhat likely	6	5	6	7	6	6	6	7	8	8	6	5
Somewhat unlikely	9	10	9	9	9	9	9	8	14	9	10	8
Very unlikely	40	38	41	40	40	39	41	36	29	35	40	42
Definitely not possible	37	42	39	30	36	37	37	35	37	29	36	41
Don't know	6	4	4	12	6	7	5	9	8	15	6	3
5b. Eating in a restaurant where the cook has the AIDS virus?												
Very likely	6	5	5	7	5	6	5	9	6	8	6	4
Somewhat likely	18	17	17	20	19	18	18	20	18	21	20	15
Somewhat unlikely	13	16	13	12	14	13	13	11	16	11	14	14
Very unlikely	31	31	35	28	32	31	33	27	23	23	30	37
Definitely not possible	22	26	23	18	21	22	21	21	26	18	20	25
Don't know	10	5	7	17	9	10	9	12	12	19	10	5
5c. Sharing plates, forks, or glasses with someone who has the AIDS virus?												
Very likely	10	9	10	11	10	10	10	13	10	13	11	8
Somewhat likely	21	20	20	24	23	20	21	23	22	24	23	18
Somewhat unlikely	13	15	13	12	13	13	13	11	14	11	13	14
Very unlikely	27	26	30	24	27	26	28	22	21	20	25	32
Definitely not possible	20	24	21	15	19	21	20	19	22	16	19	23
Don't know	9	6	6	15	9	9	8	12	11	17	9	5
5d. Using public toilets?												
Very likely	6	5	4	8	5	6	5	10	10	10	6	3
Somewhat likely	13	12	12	16	12	15	12	15	19	18	14	10
Somewhat unlikely	12	13	11	11	12	11	11	11	12	10	13	11
Very unlikely	34	32	38	31	36	32	36	28	23	26	33	39
Definitely not possible	27	32	30	21	27	27	28	25	26	20	25	33
Don't know	8	6	5	14	8	9	8	11	10	16	8	5
5e. Sharing needles for drug use with someone who has the AIDS virus?												
Very likely	95	96	97	92	95	95	96	93	93	90	96	97
Somewhat likely	2	2	1	3	2	2	2	3	2	3	2	1
Somewhat unlikely	0	0	–	0	0	0	0	0	0	0	0	0
Very unlikely	0	0	0	0	0	0	0	0	1	0	0	0
Definitely not possible	0	0	0	0	0	0	0	0	1	0	0	0
Don't know	2	1	1	5	2	2	2	3	3	6	1	1
5f. Being coughed or sneezed on by someone who has the AIDS virus?												
Very likely	8	6	8	10	7	8	7	12	7	12	8	6
Somewhat likely	20	18	18	23	20	20	20	21	17	21	22	18
Somewhat unlikely	14	15	15	12	14	14	14	12	12	11	14	15
Very unlikely	30	31	33	25	31	28	31	25	27	23	28	34
Definitely not possible	18	24	19	13	18	19	18	18	26	15	18	21
Don't know	10	6	7	17	10	11	10	12	12	19	10	6

See footnotes at end of table.

Table 1. Provisional estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, July–September 1990—Con.

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in technical notes]

AIDS knowledge or attitude	Total	Age: 18–29 years	Age: 30–49 years	Age: 50 years and over	Sex: Male	Sex: Female	Race or ethnicity: Non-Hispanic White	Race or ethnicity: Non-Hispanic Black	Race or ethnicity: Hispanic	Education: Less than 12 years	Education: 12 years	Education: More than 12 years
	Percent distribution											
5g. Attending school with a child who has the AIDS virus?												
Very likely	2	2	1	2	2	2	1	4	3	4	2	1
Somewhat likely	5	4	5	7	5	6	5	6	8	8	5	4
Somewhat unlikely	8	9	8	8	9	8	8	9	7	8	9	7
Very unlikely	41	38	42	40	43	39	43	35	29	34	41	44
Definitely not possible	37	43	39	30	36	38	37	36	43	30	37	41
Don't know	7	4	4	13	6	7	6	9	10	16	6	3
5h. Mosquitoes or other insects?												
Very likely	9	11	8	9	9	9	8	14	13	13	10	6
Somewhat likely	19	21	19	18	20	19	18	24	24	23	21	16
Somewhat unlikely	7	9	8	5	8	7	8	8	5	6	7	8
Very unlikely	25	23	28	23	26	24	27	19	20	19	24	30
Definitely not possible	20	21	22	17	19	21	21	16	20	13	19	25
Don't know	19	15	16	27	18	21	19	20	18	27	20	15
8. Have you ever discussed AIDS with any of your children aged 10–17?[2]												
Yes	67	57	68	56	54	78	70	61	57	52	65	75
No	33	42	32	44	46	22	30	39	43	48	35	25
Don't know	0	1	–	–	–	0	0	–	–	–	0	–
9. Have any or all of your children aged 10–17 had instruction at school about AIDS?[2]												
Yes	72	66	73	70	67	77	73	74	70	65	71	77
No	9	22	9	7	7	11	9	9	9	13	11	6
Don't know	18	12	18	24	26	12	18	17	21	22	18	17
10. Have you ever donated blood?												
Yes	40	34	43	41	52	29	43	33	27	29	37	49
No	60	66	56	59	48	70	57	67	73	71	63	50
Don't know	0	0	0	0	0	0	0	0	0	0	0	0
11a. Have you donated blood since March 1985?												
Yes	16	24	20	6	20	13	17	14	12	7	15	23
No	83	76	80	93	80	86	82	85	88	93	85	76
Don't know	1	0	1	1	1	0	1	1	0	1	0	1
11b. Have you donated blood in the past 12 months?												
Yes	7	9	8	3	8	5	7	5	4	2	6	9
No	93	91	92	96	91	94	92	94	95	98	93	90
Don't know	1	0	1	1	1	1	1	1	0	1	0	1
12. How many times have you donated blood since March 1985?												
Once	5	9	5	1	5	5	5	5	4	2	5	6
Twice	3	5	4	1	5	2	3	4	3	2	3	5
Three times or more	8	9	10	3	10	6	9	6	5	2	7	12
Don't know	0	0	0	0	0	0	0	0	–	0	0	0
Did not donate blood since March 1985[3]	84	76	80	94	80	87	83	86	88	93	85	77
13. How many times have you donated blood in the past 12 months?												
Once	4	6	4	2	5	2	4	2	2	1	3	7

	Definitely not possible	37	43	39	30	36	38	37	36	43	30	37	41
	Don't know	7	4	4	13	6	7	6	9	10	16	6	3
5h.	Mosquitoes or other insects?												
	Very likely	9	11	8	9	9	9	8	14	13	13	10	6
	Somewhat likely	19	21	19	18	20	19	18	24	24	23	21	16
	Somewhat unlikely	7	9	8	5	8	7	8	8	5	6	7	8
	Very unlikely	25	23	28	23	26	24	27	19	20	19	24	30
	Definitely not possible	20	21	22	17	19	21	21	16	20	13	19	25
	Don't know	19	15	16	27	18	21	19	20	18	27	20	15
8.	Have you ever discussed AIDS with any of your children aged 10–17?[2]												
	Yes	67	57	68	56	54	78	70	61	57	52	65	75
	No	33	42	32	44	46	22	30	39	43	48	35	25
	Don't know	0	1	–	–	–	0	0	–	–	–	0	–
9.	Have any or all of your children aged 10–17 had instruction at school about AIDS?[2]												
	Yes	72	66	73	70	67	77	73	74	70	65	71	77
	No	9	22	9	7	7	11	9	9	9	13	11	6
	Don't know	18	12	18	24	26	12	18	17	21	22	18	17
10.	Have you ever donated blood?												
	Yes	40	34	43	41	52	29	43	33	27	29	37	49
	No	60	66	56	59	48	70	57	67	73	71	63	50
	Don't know	0	0	0	0	0	0	0	0	0	0	0	0
11a.	Have you donated blood since March 1985?												
	Yes	16	24	20	6	20	13	17	14	12	7	15	23
	No	83	76	80	93	80	86	82	85	88	93	85	76
	Don't know	1	0	1	1	1	0	1	1	0	1	0	1
11b.	Have you donated blood in the past 12 months?												
	Yes	7	9	8	3	8	5	7	5	4	2	6	9
	No	93	91	92	96	91	94	92	94	95	98	93	90
	Don't know	1	0	1	1	1	1	1	1	0	1	0	1
12.	How many times have you donated blood since March 1985?												
	Once	5	9	5	1	5	5	5	5	4	2	5	6
	Twice	3	5	4	1	5	2	3	4	3	2	3	5
	Three times or more	8	9	10	3	10	6	9	6	5	2	7	12
	Don't know	0	0	0	0	0	0	0	0	–	0	0	0
	Did not donate blood since March 1985[3]	84	76	80	94	80	87	83	86	88	93	85	77
13.	How many times have you donated blood in the past 12 months?												
	Once	4	6	4	2	5	3	4	3	3	1	4	5
	Twice	2	2	2	1	2	1	2	1	1	0	1	3
	Three times or more	1	1	2	0	2	1	1	1	1	0	1	2
	Don't know	0	0	0	0	0	0	0	0	0	–	0	0
	Did not donate blood in the past 12 months[4]	93	91	92	97	92	95	93	95	95	98	94	91
14.	Have you ever heard of a blood test that can detect the AIDS virus infection?												
	Yes	79	81	86	68	79	78	82	68	67	60	78	89
	No	19	17	13	28	18	19	16	29	30	35	20	10
	Don't know	2	1	1	4	2	3	2	3	3	5	2	1
15.	To the best of your knowledge, are blood donations routinely tested for the AIDS virus infection?												
	Yes	66	71	74	54	66	66	70	51	54	45	65	78
	No	5	4	6	5	6	5	5	9	5	5	5	5
	Don't know	7	6	7	9	8	7	7	8	9	10	7	6
	Never heard of test[5]	21	19	14	32	21	22	18	32	33	40	22	11
16.	Was one of your reasons for donating blood because you wanted to be tested for the AIDS virus infection?[6]												
	Yes	2	3	2	0	2	2	2	6	1	4	2	2
	No	81	79	84	76	79	83	84	59	77	59	77	87
	Don't know	0	0	–	–	0	0	–	–	2	–	0	0
	Never heard of test[5]	9	9	7	15	10	8	7	22	15	24	12	5
17.	Except for blood donations since 1985, have you had your blood tested for the AIDS virus infection?												
	Yes	10	16	13	4	12	9	9	13	17	9	10	12
	No	66	64	71	61	65	67	70	53	48	49	66	75
	Don't know	2	2	2	3	2	2	2	2	2	2	2	3
	Never heard of test[5]	21	19	14	32	21	22	18	32	33	40	22	11

See footnotes at end of table.

Table 1. Provisional estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, July–September 1990—Con.

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AIDS knowledge or attitude	Total	Age: 18–29 years	Age: 30–49 years	Age: 50 years and over	Sex: Male	Sex: Female	Race or ethnicity: Non-Hispanic White	Race or ethnicity: Non-Hispanic Black	Race or ethnicity: Hispanic	Education: Less than 12 years	Education: 12 years	Education: More than 12 years
	Percent distribution											
18. How many times have you had your blood tested for the AIDS virus infection, not including blood donations?												
Once	7	10	9	3	8	7	7	9	13	6	7	8
Twice	2	3	2	1	2	1	2	2	3	2	2	2
Three times or more	1	2	1	0	2	1	1	1	1	1	1	1
Don't know	0	0	0	0	0	0	0	0	0	0	0	0
Never heard of/had test[7]	90	84	87	96	88	91	91	87	83	91	90	88
19. How many times in the past 12 months have you had your blood tested for the AIDS virus infection, not including blood donations?												
None	5	7	6	2	6	4	5	5	8	4	4	6
Once	5	7	6	1	5	4	4	7	8	4	4	5
Twice	1	1	1	0	1	1	0	1	1	1	1	1
Three times or more	0	0	0	0	0	0	0	0	0	0	0	0
Don't know	0	–	–	0	–	0	0	–	–	0	–	–
Never heard of/had test[7]	90	84	87	96	88	91	91	87	83	91	90	88
20a. Were the blood tests, including those you had before the past 12 months, required or did you go for them voluntarily, or were there some of each?[8]												
All required	49	47	51	43	54	42	49	36	56	45	47	51
All volunteered	47	49	45	55	43	53	48	57	41	51	49	45
Some of each	3	4	2	1	2	3	2	4	1	2	3	3
Don't know	1	0	1	1	1	1	1	1	1	2	0	1
20b. Were any of the blood tests required for:[8]												
Hospitalization or a surgical procedure?	9	9	7	15	7	12	10	8	5	10	9	9
Health insurance?	3	1	4	1	4	1	3	1	0	0	2	4
Life insurance?	8	6	11	6	12	5	10	6	2	2	5	14
Employment?	6	5	6	6	7	5	5	10	5	2	6	7
Military induction or military service?	9	14	7	3	15	2	10	6	–	0	12	10
Immigration?	7	3	11	2	6	7	1	5	39	21	5	3
Other	12	14	11	12	10	15	13	10	9	12	13	11
Don't know	–	–	–	–	–	–	–	–	–	–	–	–
21. When was your last blood test for the AIDS virus infection?[8]												
1990	35	35	35	36	32	38	35	43	33	34	38	34
1989	30	35	28	27	31	29	28	33	35	33	28	31
1988	18	19	18	18	19	17	19	9	21	19	17	19
1987	8	5	10	8	8	8	9	7	6	6	9	8
1986	4	3	5	2	4	3	4	3	2	3	3	5
1985	1	1	2	1	1	1	2	1	–	–	1	2
Don't know	2	2	1	6	3	2	3	0	1	3	3	2
22a. Was your last test required or did you go for it voluntarily?[8]												
Required	50	49	52	43	56	43	50	39	57	47	48	53
Voluntary	48	49	46	54	43	55	49	57	41	50	51	46
Don't know	1	0	1	2	0	1	1	1	1	^	^	^

Three times or more	1	2	1	0	2	1	1	1	1	1	1	1
Don't know	0	0	0	0	0	0	0	0	0	0	0	0
Never heard of/had test[7]	90	84	87	96	88	91	91	87	83	91	90	88
19. How many times in the past 12 months have you had your blood tested for the AIDS virus infection, not including blood donations?												
None	5	7	6	2	6	4	5	5	8	4	4	6
Once	5	7	6	1	5	4	4	7	8	4	4	5
Twice	1	1	1	0	1	1	0	1	1	1	1	1
Three times or more	0	0	0	0	0	0	0	0	0	0	0	0
Don't know	0	–	–	0	–	0	0	–	–	0	–	–
Never heard of/had test[7]	90	84	87	96	88	91	91	87	83	91	90	88
20a. Were the blood tests, including those you had before the past 12 months, required or did you go for them voluntarily, or were there some of each?[8]												
All required	49	47	51	43	54	42	49	36	56	45	47	51
All volunteered	47	49	45	55	43	53	48	57	41	51	49	45
Some of each	3	4	2	1	2	3	2	4	1	2	3	3
Don't know	1	0	1	1	1	1	1	1	1	2	0	1
20b. Were any of the blood tests required for:[8]												
Hospitalization or a surgical procedure?	9	9	7	15	7	12	10	8	5	10	9	9
Health insurance?	3	1	4	1	4	1	3	1	0	0	2	4
Life insurance?	8	6	11	6	12	5	10	6	2	2	5	14
Employment?	6	5	6	6	7	5	5	10	5	2	6	7
Military induction or military service?	9	14	7	3	15	2	10	6	–	0	12	10
Immigration?	7	3	11	2	6	7	1	5	39	21	5	3
Other	12	14	11	12	10	15	13	10	9	12	13	11
Don't know	–	–	–	–	–	–	–	–	–	–	–	–
21. When was your last blood test for the AIDS virus infection?[8]												
1990	35	35	35	36	32	38	35	43	33	34	38	34
1989	30	35	28	27	31	29	28	33	35	33	28	31
1988	18	19	18	18	19	17	19	9	21	19	17	19
1987	8	5	10	8	8	8	9	7	6	6	9	8
1986	4	3	5	2	4	3	4	3	2	3	3	5
1985	1	1	2	1	1	1	2	1	–	–	1	2
Don't know	2	2	1	6	3	2	3	0	1	3	3	2
22a. Was your last test required or did you go for it voluntarily?[8]												
Required	50	49	52	43	56	43	50	39	57	47	48	53
Voluntary	48	49	46	54	43	55	49	57	41	50	51	46
Don't know	1	0	1	2	0	1	1	1	1	2	0	1
22b. Was the test required for:[8]												
Hospitalization or a surgical procedure?	9	10	7	15	7	12	10	6	5	11	9	9
Health insurance?	3	1	4	1	4	1	3	1	–	0	2	4
Life insurance?	8	5	11	6	11	4	10	4	2	2	4	13
Employment?	5	5	5	6	7	4	5	10	5	2	5	7
Military induction or military service?	8	12	6	3	13	2	9	5	–	0	12	8
Immigration?	7	3	11	2	6	7	1	5	39	21	5	3
Other	11	12	10	11	10	13	12	10	7	10	11	11
Don't know	–	–	–	–	–	–	–	–	–	–	–	–
23. Not including a blood donation, where was your last blood test for the AIDS virus done?[8]												
AIDS clinic/counseling/testing site	3	2	4	6	3	4	3	4	6	7	2	3
Clinic run by employer	3	3	2	5	3	2	2	5	2	3	3	2
Doctor/HMO	33	31	36	25	29	37	33	25	44	29	34	34
Public health department	8	10	7	5	7	9	6	16	10	15	9	4
Hospital/emergency room/outpatient clinic	24	23	21	36	21	27	26	20	9	21	25	24
STD clinic	0	0	–	–	0	0	0	–	–	0	–	0
Family planning clinic	0	1	0	–	1	0	1	1	–	0	1	0
Prenatal clinic	0	0	0	–	0	0	0	1	–	0	1	–
Tuberculosis clinic	–	–	–	–	–	–	–	–	–	–	–	–
Other clinic	7	6	6	11	7	6	5	7	13	11	5	6
Drug treatment facility	0	1	0	–	1	–	0	2	0	0	0	1
Military induction/service site	8	11	6	4	12	3	9	7	–	0	10	9
Immigration site	1	1	2	0	1	2	–	2	5	4	0	1
Other	12	10	14	8	14	10	13	8	10	9	10	14
Don't know	0	1	–	–	0	–	0	–	–	–	–	0

See footnotes at end of table.

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AIDS knowledge or attitude	Total	Age: 18–29 years	Age: 30–49 years	Age: 50 years and over	Sex: Male	Sex: Female	Race or ethnicity: Non-Hispanic White	Race or ethnicity: Non-Hispanic Black	Race or ethnicity: Hispanic	Education: Less than 12 years	Education: 12 years	Education: More than 12 years
	Percent distribution											
24. Before your last blood test for the AIDS virus infection, were you counseled about the AIDS virus and the meaning of the test?[8]												
Yes	43	52	40	25	43	42	42	54	33	37	46	42
No	56	47	58	74	55	56	57	41	65	62	52	56
Don't know	1	1	1	–	2	1	1	1	1	1	1	1
25. Did you get the results of your last test?[8]												
Yes	79	80	78	79	76	81	77	78	85	85	77	78
No	20	19	21	20	22	18	22	19	14	14	22	21
Don't know	1	1	0	–	1	0	1	–	1	1	0	1
26. Did you want the results of your last test?[9]												
Yes	38	48	35	27	42	34	38	32	46	43	37	38
No	58	47	63	70	55	62	60	56	54	49	59	60
Don't know	3	5	2	4	3	4	2	12	–	8	4	2
27. When you received the results of your last test, did you receive counseling or talk with a health professional about how to lower your chances of becoming infected with the AIDS virus or how to avoid passing it on to another person?[10]												
Yes	29	37	25	16	30	28	27	39	26	31	32	24
No	70	62	74	83	69	72	72	61	74	67	68	75
Don't know	1	1	1	1	1	0	1	–	–	2	0	1
28. Were the results given in person, by telephone, by mail, or in some other way?[10]												
In person	63	66	60	67	64	62	58	66	86	72	69	54
By telephone	17	17	18	11	11	23	20	15	4	10	14	23
By mail	13	10	14	16	16	10	14	16	6	13	12	15
Other	6	6	7	4	8	4	8	4	3	4	6	8
Don't know	1	0	1	1	1	0	1	–	1	1	0	1
29. Do you feel your last test for the AIDS virus infection was handled properly in terms of the confidentially of your test results?[8]												
Yes	92	94	90	94	91	94	92	92	93	90	95	91
No	2	3	2	0	2	2	2	1	4	3	2	2
Don't know	5	3	6	5	6	4	5	5	2	6	2	6
30. Do you expect to have a blood test for the AIDS virus infection in the next 12 months?												
Yes	6	10	6	2	7	5	5	12	8	6	5	6
No	69	66	76	63	68	70	74	49	51	50	69	79
Don't know	4	5	4	3	4	4	3	6	9	5	4	4
Never heard of test[5]	21	19	14	32	21	22	18	32	33	40	22	11
31. Tell me which of these statements explain why you will have the blood test?[11]												

Don't know	1	1	1	–	2	1	1	1	1	1	1	1
25. Did you get the results of your last test?[8]												
Yes	79	80	78	79	76	81	77	78	85	85	77	78
No	20	19	21	20	22	18	22	19	14	14	22	21
Don't know	1	1	0	–	1	0	1	–	1	1	0	1
26. Did you want the results of your last test?[9]												
Yes	38	48	35	27	42	34	38	32	46	43	37	38
No	58	47	63	70	55	62	60	56	54	49	59	60
Don't know	3	5	2	4	3	4	2	12	–	8	4	2
27. When you received the results of your last test, did you receive counseling or talk with a health professional about how to lower your chances of becoming infected with the AIDS virus or how to avoid passing it on to another person?[10]												
Yes	29	37	25	16	30	28	27	39	26	31	32	24
No	70	62	74	83	69	72	72	61	74	67	68	75
Don't know	1	1	1	1	1	0	1	–	–	2	0	1
28. Were the results given in person, by telephone, by mail, or in some other way?[10]												
In person	63	66	60	67	64	62	58	66	86	72	69	54
By telephone	17	17	18	11	11	23	20	15	4	10	14	23
By mail	13	10	14	16	16	10	14	16	6	13	12	15
Other	6	6	7	4	8	4	8	4	3	4	6	8
Don't know	1	0	1	1	1	0	1	–	1	1	0	1
29. Do you feel your last test for the AIDS virus infection was handled properly in terms of the confidentiality of your test results?[8]												
Yes	92	94	90	94	91	94	92	92	93	90	95	91
No	2	3	2	0	2	2	2	1	4	3	2	2
Don't know	5	3	6	5	6	4	5	5	2	6	2	6
30. Do you expect to have a blood test for the AIDS virus infection in the next 12 months?												
Yes	6	10	6	2	7	5	5	12	8	6	5	6
No	69	66	76	63	68	70	74	49	51	50	69	79
Don't know	4	5	4	3	4	4	3	6	9	5	4	4
Never heard of test[5]	21	19	14	32	21	22	18	32	33	40	22	11
31. Tell me which of these statements explain why you will have the blood test:[11]												
Voluntarily, because you personally want to know if you are infected	64	68	62	56	60	70	55	80	87	77	68	55
As part of a blood donation	25	24	26	24	28	21	26	18	34	24	22	28
As part of a hospitalization or surgical procedure	12	12	9	22	10	14	12	14	7	16	13	9
As a requirement for health insurance	8	7	10	9	9	8	7	11	8	10	10	7
As a requirement for life insurance	8	7	9	11	9	7	7	9	11	9	7	8
As a requirement for a job, other than military	10	9	12	8	11	10	8	16	13	10	10	11
As a requirement for the military	10	13	11	–	14	6	12	7	7	3	14	11
As a requirement for immigration	3	3	2	2	2	3	2	2	7	2	3	2
As a required part of some other activity that includes a blood sample and automatic AIDS testing	15	16	13	14	16	14	16	13	16	14	14	16
32. Where will you go to have a blood test for the AIDS virus infection?[11]												
AIDS clinic/counseling/testing site	1	1	1	1	1	1	1	1	2	2	1	1
Clinic run by employer	3	1	4	8	4	2	3	6	1	2	4	4
Doctor/HMO	38	40	35	39	34	43	35	41	45	36	42	35
Hospital/emergency room/outpatient clinic	18	19	17	19	15	22	18	21	12	17	18	19
Other clinic	6	6	5	11	5	7	5	5	12	10	3	7
Public health department	8	11	7	5	8	8	6	12	11	15	10	4
Red Cross/blood bank	11	9	13	11	14	7	13	6	9	10	7	14
Other	10	8	13	2	13	6	13	4	1	3	10	13
Don't know	5	6	4	4	6	4	5	4	8	5	6	4

See footnotes at end of table.

Table 1. Provisional estimates of the percent of persons 18 years of age and over with selected AIDS knowledge and attitudes from the 1990 National Health Interview Survey, by selected characteristics: United States, July–September 1990—Con.

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in technical notes]

AIDS knowledge or attitude	Total	Age			Sex		Race or ethnicity			Education		
		18–29 years	30–49 years	50 years and over	Male	Female	Non-Hispanic White	Non-Hispanic Black	Hispanic	Less than 12 years	12 years	More than 12 years
	Percent distribution											
33. Did you have a blood transfusion at any time between 1977 and 1985?												
Yes	5	3	5	8	6	5	6	5	3	7	5	6
No	93	97	94	90	93	94	93	94	96	92	94	93
Don't know	1	1	1	2	1	1	1	0	2	2	1	1
34. Do you think the present supply of blood is safe for tranfusions?												
Yes	44	51	47	36	48	41	47	34	32	31	43	53
No	32	31	33	33	30	35	31	37	43	37	34	28
Don't know	23	18	20	31	22	24	22	29	25	32	23	19
35. How effective do you think the use of a condom is to prevent getting the AIDS virus through sexual activity?												
Very effective	26	31	29	19	30	23	27	27	21	17	25	32
Somewhat effective	53	53	56	49	52	54	54	44	49	43	54	57
Not at all effective	4	4	3	5	3	5	4	8	5	6	4	3
Don't know how effective	14	10	9	23	13	15	13	18	16	26	14	7
Don't know method	3	2	2	4	3	3	2	3	9	7	2	1
36. What are your chances of having the AIDS virus?												
High	0	0	1	0	0	0	0	1	1	1	0	0
Medium	2	4	2	1	2	2	2	4	3	2	2	2
Low	15	21	17	9	17	13	16	13	9	9	14	19
None	80	73	79	88	78	83	81	78	82	83	82	77
Don't know	2	2	2	2	2	2	1	4	5	5	2	1
37. What are your chances of getting the AIDS virus?												
High	1	1	0	0	1	0	0	1	2	1	1	0
Medium	3	5	3	2	3	3	3	3	3	3	3	3
Low	21	28	25	12	24	19	22	17	19	12	18	30
None	72	63	69	83	69	75	73	73	68	78	76	66
Don't know	2	2	2	3	3	2	1	5	6	6	2	1
N/A—High chance of already having the AIDS virus	0	0	1	0	0	0	0	1	1	1	0	0
38. Have you ever personally known anyone with AIDS or the AIDS virus?												
Yes	15	16	19	11	14	16	15	19	15	9	13	21
No	83	82	79	87	83	82	83	78	83	88	86	76
Don't know	2	2	2	2	2	2	2	3	2	3	2	2
39. Is any of these statements true for you?												
a. You have hemophilia and have received clotting factor concentrates since 1977.												
b. You are a native of Haiti or Central or East Africa												

Don't know	1	1	1	2	1	1	1	0	2	2	1	1
34. Do you think the present supply of blood is safe for tranfusions?												
Yes	44	51	47	36	48	41	47	34	32	31	43	53
No	32	31	33	33	30	35	31	37	43	37	34	28
Don't know	23	18	20	31	22	24	22	29	25	32	23	19
35. How effective do you think the use of a condom is to prevent getting the AIDS virus through sexual activity?												
Very effective	26	31	29	19	30	23	27	27	21	17	25	32
Somewhat effective	53	53	56	49	52	54	54	44	49	43	54	57
Not at all effective	4	4	3	5	3	5	4	8	5	6	4	3
Don't know how effective	14	10	9	23	13	15	13	18	16	26	14	7
Don't know method	3	2	2	4	3	3	2	3	9	7	2	1
36. What are your chances of having the AIDS virus?												
High	0	0	1	0	0	0	0	1	1	1	0	0
Medium	2	4	2	1	2	2	2	4	3	2	2	2
Low	15	21	17	9	17	13	16	13	9	9	14	19
None	80	73	79	88	78	83	81	78	82	83	82	77
Don't know	2	2	2	2	2	2	1	4	5	5	2	1
37. What are your chances of getting the AIDS virus?												
High	1	1	0	0	1	0	0	1	2	1	1	0
Medium	3	5	3	2	3	3	3	3	3	3	3	3
Low	21	28	25	12	24	19	22	17	19	12	18	30
None	72	63	69	83	69	75	73	73	68	78	76	66
Don't know	2	2	2	3	3	2	1	5	6	6	2	1
N/A—High chance of already having the AIDS virus	0	0	1	0	0	0	0	1	1	1	0	0
38. Have you ever personally known anyone with AIDS or the AIDS virus?												
Yes	15	16	19	11	14	16	15	19	15	9	13	21
No	83	82	79	87	83	82	83	78	83	88	86	76
Don't know	2	2	2	2	2	2	2	3	2	3	2	2
39. Is any of these statements true for you?												
a. You have hemophilia and have received clotting factor concentrates since 1977.												
b. You are a native of Haiti or Central or East Africa who has entered the United States since 1977.												
c. You are a man who has had sex with another man at some time since 1977, even 1 time.												
d. You have taken illegal drugs by needle at any time since 1977.												
e. Since 1977, you are or have been the sex partner of any person who would answer yes to any of the items above (39 a–d).												
f. You have had sex for money or drugs at any time since 1977.												
Yes to at least 1 statement	2	5	3	1	3	2	2	4	3	3	2	2
No to all statements	97	95	97	99	97	98	98	96	97	97	98	97
Don't know	0	0	0	0	0	0	0	0	0	0	0	0

[1]Multiple responses may sum to more than 100.
[2]Based on persons answering yes to question 6, "Do you have any children aged 10 through 17?" Question 7 was "How many do you have?"
[3]Persons answering no or don't know to question 10 or 11a.
[4]Persons answering no or don't know to question 10, 11a, or 11b.
[5]Persons answering no or don't know to question 14.
[6]Based on persons answering yes to question 11a.
[7]Persons answering no or don't know to questions 14 or 17.
[8]Based on persons answering yes to question 17.
[9]Persons answering no or don't know to question 25.
[10]Based on persons answering yes to question 25.
[11]Based on persons answering yes to question 30.

Technical notes

The National Health Interview Survey (NHIS) is a continuous, cross-sectional household interview survey. Each week, a probability sample of the civilian noninstitutionalized population is interviewed by personnel of the U.S. Bureau of the Census to obtain information on the health and other characteristics of each member of the household. Information on special health topics is collected for all or a sample of household members. The 1990 National Health Interview Survey of AIDS Knowledge and Attitudes is asked of one randomly chosen adult 18 years of age or over in each family. The estimates in this report are based on completed interviews with 10,125 persons, or about 85 percent of eligible respondents.

Table I contains the estimated population size of each of the demographic subgroups included in table 1 to allow readers to derive provisional estimates of the number of people in the United States with a given characteristic, for example, the number of men who have had their blood tested for HIV. The population figures in table I are based on 1989 data from the NHIS; they are not official population estimates. Table II shows approximate standard errors for most of the estimates presented in table 1. The reader is cautioned about comparing estimates when the denominator is small (for example, when looking only at people who plan to have an HIV antibody test in the next year). Both the estimates in table 1 and the standard errors in table II are provisional. They may differ from estimates made using the final data file because they were calculated using a simplified weighting procedure that does not adjust for all the factors used in weighting the final data file. A final data file covering the entire data collection period for 1990 will be available at the end of 1991.

Table I. Sample sizes for the 1990 National Health Interview Survey of AIDS Knowledge and Attitudes and estimated adult population 18 years of age and over, by selected characteristics: United States, July–September 1990

Characteristics	Sample size	Estimated population in thousands
All adults	10,125	180,271
Age		
18–29 years	2,347	46,282
30–49 years	4,053	71,331
50 years and over	3,725	62,157
Sex		
Male	4,253	85,632
Female	5,972	94,638
Race or ethnicity		
Non-Hispanic white	7,795	139,440
Non-Hispanic black	1,330	19,585
Hispanic	682	14,118
Education		
Less than 12 years	2,163	36,782
12 years	3,941	72,418
More than 12 years	3,968	70,638

Table II. Standard errors, expressed in percentage points, of estimated percents from the 1990 National Health Interview Survey of AIDS Knowledge and Attitudes, by selected characteristics: United States, July–September 1990

		Age			Sex		Race or ethnicity			Education		
Estimated percent	Total	18–29 years	30–49 years	50 years and over	Male	Female	White	Black	Hispanic	Less than 12 years	12 years	More than 12 years
05 or 95	0.3	0.5	0.4	0.5	0.4	0.4	0.3	0.8	1.1	0.6	0.4	0.4
10 or 90	0.4	0.8	0.6	0.6	0.6	0.5	0.4	1.1	1.5	0.8	0.6	0.5
15 or 85	0.5	0.9	0.7	0.8	0.7	0.6	0.5	1.3	1.8	1.0	0.7	0.7
20 or 80	0.5	1.1	0.8	0.8	0.8	0.7	0.6	1.4	2.0	1.1	0.8	0.8
25 or 75	0.6	1.2	0.9	0.9	0.9	0.8	0.7	1.6	2.2	1.2	0.9	0.9

each member of the household. Information on special health topics is collected for all or a sample of household members. The 1990 National Health Interview Survey of AIDS Knowledge and Attitudes is asked of one randomly chosen adult 18 years of age or over in each family. The estimates in this report are based on completed interviews with 10,125 persons, or about 85 percent of eligible respondents.

Table I contains the estimated population size of each of the demographic subgroups included in table 1 to allow readers to derive provisional estimates of the number

table 1. The reader is cautioned about comparing estimates when the denominator is small (for example, when looking only at people who plan to have an HIV antibody test in the next year). Both the estimates in table 1 and the standard errors in table II are provisional. They may differ from estimates made using the final data file because they were calculated using a simplified weighting procedure that does not adjust for all the factors used in weighting the final data file. A final data file covering the entire data collection period for 1990 will be available at the end of 1991.

All adults	10,125	160,271
Age		
18–29 years	2,347	46,282
30–49 years	4,053	71,331
50 years and over	3,725	62,157
Sex		
Male	4,253	85,632
Female	5,872	94,633
Race or ethnicity		
Non-Hispanic white	7,795	139,440
Non-Hispanic black	1,330	19,585
Hispanic	682	14,115
Education		
Less than 12 years	2,163	36,782
12 years	3,941	72,418
More than 12 years	3,968	70,036

Table II. Standard errors, expressed in percentage points, of estimated percents from the 1990 National Health Interview Survey of AIDS Knowledge and Attitudes, by selected characteristics: United States, July–September 1990

		Age			Sex		Race or ethnicity			Education		
Estimated percent	Total	18–29 years	30–49 years	50 years and over	Male	Female	White	Black	Hispanic	Less than 12 years	12 years	More than 12 years
05 or 95	0.3	0.6	0.4	0.5	0.4	0.4	0.3	0.8	1.1	0.6	0.4	0.4
10 or 90	0.4	0.8	0.6	0.6	0.6	0.5	0.4	1.1	1.5	0.8	0.6	0.5
15 or 85	0.5	0.9	0.7	0.8	0.7	0.6	0.5	1.3	1.3	1.0	0.7	0.7
20 or 80	0.5	1.1	0.8	0.8	0.8	0.7	0.6	1.4	2.0	1.1	0.8	0.8
25 or 75	0.5	1.2	0.9	0.9	0.9	0.7	0.6	1.5	2.1	1.2	0.9	0.9
30 or 70	0.6	1.2	0.9	1.0	0.9	0.8	0.7	1.5	2.3	1.3	0.9	0.9
35 or 65	0.6	1.3	1.0	1.0	0.9	0.8	0.7	1.7	2.4	1.4	1.0	1.0
40 or 60	0.6	1.3	1.0	1.0	1.0	0.8	0.7	1.7	2.4	1.4	1.0	1.0
45 or 55	0.6	1.3	1.0	1.0	1.0	0.8	0.7	1.8	2.5	1.4	1.0	1.0
50	0.6	1.3	1.0	1.1	1.0	0.8	0.7	1.8	2.5	1.4	1.0	1.0

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