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An investigation of the effects of knowledge of human immunodeficiency virus antibody status on high-risk sexual behaviors and safer sex practices in a cohort of homosexual and bisexual men

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The Ohio State University, 1990
AN INVESTIGATION OF THE EFFECTS OF KNOWLEDGE
OF HUMAN IMMUNODEFICIENCY VIRUS ANTIBODY STATUS
ON HIGH-RISK SEXUAL BEHAVIORS AND SAFER SEX PRACTICES
IN A COHORT OF HOMOSEXUAL AND BISEXUAL MEN

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of the Ohio State University

By

Davis Michael Graham, A.B., M.S.W.

* * * * *

The Ohio State University
1990

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DEDICATION

To My Mother, Mrs. Becky Hulette, Who Has Given
Unending Love and Support To Me During the Entire
Course of My Doctoral Education
ACKNOWLEDGEMENTS

This dissertation brings to fruition a long-time professional goal. Its development has been supported by many people. I would like to recognize the special efforts of just a few of these individuals as space does not permit the enumeration of everyone.

First, I wish to express my appreciation to the members of my dissertation committee. Dr. Nolan Rindfleisch, who served as my chair and advisor, provided encouragement, advice, and counsel throughout the entire investigatory process. He responded generously with his time to explore my ideas concerning this research. Dr. Keith Kilty patiently listened to the substantive issues I discussed which allowed me to maintain focus on my goal. Dr. Bernard Weiss provided valuable editorial support, discussions of theory application, and welcomed hospitality in his home.

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CHAPTER I
INTRODUCTION

Since the first cases of acquired immunodeficiency syndrome (AIDS) were recognized in 1981, biological and epidemiological data concerning the wave of illness and origins of the disease has rapidly increased. Specifically, the identification of the human immunodeficiency virus (HIV) in 1984, and the production of sensitive HIV antibody tests by 1985, allowed intensive research into the transmission dynamics of this disease. However, the outlook for either a vaccine or a curative treatment for those already infected with HIV remains remote, and consideration must now be given to the only reliable prevention measure: alteration of those human behaviors responsible for the transmission of HIV (Becker, 1988).

Briefly, HIV transmission has been shown to occur through three primary routes: vaginal, orogenital and anogenital contact in heterosexuals and homosexuals; direct exposure to infectious blood through the use of intravenous drugs, or from the receipt of blood products; perinatal exposure by the fetus, which may occur in utero or during the birth process, and postnatally, from breast milk (Friedland and Klein, 1987; Martin and Vance, 1984).
Prevention of HIV transmission necessitates either cessation or modification of relevant behaviors. In particular, sexual abstinence and the avoidance of IV drugs would essentially stop the spread of HIV -- but popular compliance with such extreme measures has been virtually nonexistent, thereby, requiring the development of measures to modify or eliminate risk-related behaviors (Becker, 1988).

"Safer sex" guidelines have been issued by the U.S. Public Health Service and the Centers for Disease Control which strongly advise that individuals at risk for transmission of HIV refrain from exchanging bodily fluids, particularly semen during sexual activity. In addition, the consistent and careful use of latex condoms with a spermicide containing the viricidal substance nonoxynol-9 is recommended. For those persons using IV drugs, the repeated sterilization or use of clean needles and the avoidance of needle sharing is essential. Women at risk for HIV infection should avoid conception, consider termination of the fetus, and avoid breast feeding (Wofsy, 1988; Allen and Curran, 1988; Mason et al., 1988; Goedert, 1987).

BACKGROUND TO THE PROBLEM

Sexual Practices and Risk of HIV Infection in Gay/Bisexual Men

Of the 1.5 to 2 million persons expected to be infected with HIV, individuals at highest risk for acquiring the virus in the United States continue to be
homosexual and bisexual men (Drotman, 1989; Chiasson et al., 1990; Cleary, et al., 1988; Moss et al., 1987). These two groups account for 67% and 80% of all AIDS cases in the United States and Ohio, respectively ("Ohio AIDS Data," 1990; "HIV/AIDS Surveillance," 1990).

Several epidemiological investigations have explored the relationship between certain sexual practices and risks for transmission of HIV in homosexual and bisexual men. Darrow's study (1987) of HIV seroconversions in 359 male clinic patients who had been followed for 22 to 81 months after entering a hepatitis B infections research project in San Francisco supports the hypothesis that HIV is transmitted through sexual contact in gay men. In his multivariate analysis, bleeding during sexual intercourse, insertive and receptive anal intercourse, receptive fisting, and the insertion of objects (e.g., dildos) into the rectum which compromised rectal mucosa were highly associated with seroconversion to HIV positivity.

In addition to the above sexual activities, Darrow (1987) noted that four men who denied any rectal exposure since entering the cohort developed HIV antibodies as a result of penile insertion into the anuses or mouths of infected partners, or when the virus was deposited in their mouths or throats. Orogenital contact as a method of transmitting HIV has been further documented from epidemiological research conducted by Fouchard, Schmidt, and Krasnik (1989); Mayer and Degruttola (1987); and Lyman, Ascher, and Levy (1986).
In a study by Kingsley et al. (1987), 2507 homosexual men who were seronegative for HIV at the time of their enrollment were followed for six months to identify risk factors for conversion to seropositive status. Of the 95 men who later developed positive antibodies to HIV, receptive anal intercourse was the only sexual practice shown to be independently associated with an increased risk for seroconversion. Moreover, this sexual practice accounted for nearly all new HIV infections among the men enrolled in this investigation.

In a study similar to Kingsley's (1987), Mayer and his associates (1986) interviewed 40 homosexual men who were asymptomatic for HIV infection and 39 who had generalized lymphadenopathy, a common sign of subacute HIV infection. Twenty percent of the asymptomatic men and 92% of those with lymphadenopathy had positive antibodies to HIV. Seropositivity was associated with receptive anal intercourse, orogenital exposure to semen, a history of hepatitis B, anal gonorrhea, but no other sexually transmitted diseases.

Corresponding research conducted by Winkelstein et al., (1987) in the San Francisco Men’s Health Study showed that of the 1034 homosexual participants, seropositivity was significantly associated with receptive anogenital contact. Douching was the only additional sexual practice that contributed to the risk of HIV infection.

The findings reported here, along with other reports by Holmberg, Horsburgh, Ward, and Jaffe (1989); Reinisch, Sanders, and White (1988); Polk et al., (1987); and Goedert et al., (1984), support the conclusion that sexual
transmission of HIV in homosexual/bisexual men, during the current AIDS epidemic, has been primarily a function of anogenital and orogenital contact, and rectal bleeding brought on by rectal trauma.

**HIV Antibody Testing/Counseling**

Persons exposed to HIV usually develop antibodies to the virus within six to twelve weeks. The presence of antibodies indicates infection with HIV, however, clinical disease may not occur for another eight to ten years. The U.S. Public Health Service and Centers for Disease Control assert that the majority of the 1.5 to 2 million persons estimated to be infected with HIV are unaware of their seropositive status because they have not yet received antibody testing and counseling ("Public Health Service Guidelines," 1987; Rhame and Maki, 1989).

To test this hypothesis, Hardy and Dawson (1990) examined data collected from 21,168 adults who participated in the National Health Interview Survey to determine awareness of and experience with HIV antibody testing in the United States. While 75% of their sample were aware of the blood test for HIV antibodies, only 17% had been tested. Of this group, 73% received testing because of blood donation, 14% through non-voluntary programs (such as military induction), and 16% sought testing voluntarily.

The characteristics of those obtaining voluntary antibody testing indicate that a higher proportion (86%) were those who reported participating in high-risk
behaviors, but perceived themselves to be at low or no risk for transmitting or acquiring HIV. The researchers suggest that this may be one reason why the majority of this high-risk group (68%), at time they learned their test results, reported not getting HIV prevention counseling -- a vital component of the public health effort to disseminate information on controlling the spread of HIV infection (Hardy and Dawson, 1990).

Moreover, numerous articles written by health professionals across the country (Cates and Handsfield, 1988; Weiss and Their, 1988; Lo et al., 1989; Phair and Wolinsky, 1989; Danila et al., 1990), indicate that the primary public health purposes of HIV testing and counseling are to help uninfected individuals initiate and sustain behavioral changes that reduce their risk of infection and to support infected individuals in avoiding transmitting the virus to others.

For these programs to be maximally effective, they must have three important parts: (1) pretest counseling, (2) HIV (blood) testing, and (3) posttest counseling (see Appendix A for a detailed description of these components). Pretest counseling should include an explanation of the testing procedures, including a determination of the advisability of testing, a brief presentation of HIV transmission issues and ways to avoid infection, including use of safer sex practices, and an assessment of the individual's capability to cope with testing results (Leukefeld, 1988; Gunderson, Mayo, and Rhame, 1989).
During the posttest counseling session, test results should be given in a supportive manner, and their meaning should be explained fully with concerted attention given to their implication for future alterations in high-risk behaviors. A personalized behavioral risk assessment, as well as a definitive risk-reduction plan should be developed with each client. Psychological and medical resource listings should be made available to all individuals with a positive antibody status (Leukefeld, 1988; Gunderson, Mayo, and Rhame, 1989).

Statement of the Problem

While HIV antibody testing/counseling has been available to the general public since 1985, it has been previously demonstrated (Rhame and Maki, 1989; Drotman, 1989; Dawson and Hardy, 1990) that only a very small portion of the individuals in high-risk populations (e.g., homosexual and bisexual men, IV drug users) participate in testing programs.

The most commonly cited reasons gay men give for taking the antibody test are: to determine if they have been infected with HIV, to make needed changes in high-risk sexual and lifestyle practices (e.g., illicit drug use), and to relieve anxiety associated with an unknown HIV status (Lyter, Valdiserri, Kingsley, Amoroso, and Rinaldo, 1987; Siegel, Levine, Brooks, and Kern, 1989).

Gay and bisexual men who choose not to be tested often cite the following reasons for their decision: to avoid the negative psychological impact of a positive
result, to avoid perceived social and legal discrimination from a possible leak in confidentiality, to avoid an unreliable test result, and to avoid the stress of having to make needed changes in high-risk sexual and lifestyle practices (Lytter, Valdiserri, Kingsley, Amoroso, and Rinaldo, 1987; Siegel, Levine, Brooks, and Kern, 1989).

In the absence of a confirmed HIV antibody test result and counseling, these individuals must rely on idiosyncratic determinations or presumptions of their antibody status which, in turn, inform their sexual decision-making and lifestyle practices. The obvious dangers of this position are unwitting or potential exposures to and transmission of HIV.

Research designed to explore the nature of continued participation in high-risk sexual behaviors and use of safer sex practices in gay and bisexual men who have not received antibody testing has been limited thus far, but continues to grow.

A consistent finding from previous studies concerning a lack of decline in high-risk sexual behaviors is the recognition of the importance of perceived stress associated with behavioral change. Investigators found that as the level of stress increased during the process of change the adoption of safer sex practices decreased or discontinued, sometimes with the return of previous high-risk behaviors (Stall, Coates, and Hoff, 1988; Coates, Stall, Kegeles, Lo, Morin, and McKusick, 1988).

Reviews of research findings exploring the relationship between knowledge of HIV antibody test results and subsequent sexual practices in gay and bisexual men have been mixed. While the majority of studies reported to date provide
support that antibody testing is associated with decreases in high-risk behavior, no investigation has yielded the total elimination of these behaviors in all of its participants -- even among those who are seronegative and have the most to gain from preventing any further potential exposures to HIV. Variable success in reducing or eliminating the practice of receptive anal intercourse, a major route of HIV transmission in this population, has been found, also (Martin, 1989; Becker, 1988; Coates et al., 1988; Stall, Coates, and Hoff, 1988).

Purpose and Significance of the Study

The purpose of this study is to explore the effects of knowledge of HIV antibody status on high-risk sexual behaviors and safer sex practices in a cohort of homosexual and bisexual men. A secondary research objective is to explore the current sexual practices of those gay/bisexual men who do not obtain antibody testing, but presume knowledge of their serostatus. Additional emphasis will be placed on documenting the number of participants who continue to engage in receptive anal intercourse and the frequency of its use.

Recognizing that only a small portion of the gay/bisexual population in the United States has sought HIV antibody testing (Hardy and Dawson, 1990), this study accepts the important task of locating those individuals and their untested counterparts to explore their efforts to prevent the spread of HIV. Furthermore, it proposes to identify and assess the influence of psychosocial and environmental
variables (e.g., level of education, age; knowledge of HIV transmission issues; perceived risk of HIV infection) on the practice of unsafe and safer sex.

This information will allow public health social workers the opportunity to further refine their counseling strategies to increase the efficacy of HIV testing programs for high-risk populations. For example, knowledge of the need for more intensive assistance by the worker in helping the client to decrease stress in changing unsafe sexual practices, will have immediate benefit for those gay/bisexual men who are antibody positive. For these individuals, repeated exposures to HIV or other viruses through continued unsafe sexual practices exacerbates the already existing infection, increases the probability of symptom development and disease progression, and may nullify previous gains from medical therapy (Goedert et al., 1984; Kingsley et al., 1987; Goedert et al., 1986).

Definition of Terms

The following definitions have been derived from a Glossary of AIDS-Related Terms (1986) developed by the San Francisco AIDS Foundation.

1. AIDS (Acquired Immunodeficiency Syndrome) - A viral disease that impairs the body's ability to fight disease. People with AIDS are susceptible to a wide range of unusual and life threatening opportunistic infections, cancers, and neurological impairments. These infections can often be treated and some can
even be prevented, but there is no successful treatment or cure for the underlying immune deficiency caused by HIV.

2. **HIV (Human Immunodeficiency Virus)** - The virus responsible for suppressing and destroying the body's immune system. As a result of severe depletion in white blood cells caused by HIV, opportunistic infections, cancers, and neurological impairments occur.

3. **Antibodies** - Proteins in the blood which are made by the body to attack foreign organisms or toxins. With some infections such as HIV, however, the antibodies do not fight the foreign organisms, but only mark their presence. When found in the blood, these "marker" antibodies indicate infection by HIV has occurred.

4. **High-Risk Sexual Behaviors** - A term used to describe certain activities that increase the risk of transmitting HIV. These include orogenital contact, anal or vaginal intercourse without a condom, oral-anal contact without the use of a dental dam, semen or urine in the mouth, and sharing or re-using unclean intravenous needles.

5. **Safer Sex Practices** - A system of classifying specific sexual practices according to their risk of transmitting HIV. Safer sex practices (e.g., mutual masturbation, body rubbing) are used by people to avoid high-risk behavior without having to give up sexual activity. Those acts which are defined as "safer"
involve no exchange of bodily fluids (e.g., semen, urine, blood, vaginal secretions).

6. **HIV Antibody Testing** - A process of analyzing an individual's blood through the use of Enzyme-linked Immunosorbent Assay (ELISA) and Western Blot tests to determine the presence of antibodies to HIV, which indicates infection by the virus. The U.S. Public Health Service and Centers for Disease Control recommends that all individuals undergoing HIV antibody testing receive information on how to avoid contracting or transmitting HIV, and cope with a positive or negative test result by obtaining additional psychosocial and medical support.

7. **Antibody Positive** - An individual who has antibodies to HIV as determined by both the ELISA and Western Blot blood tests.

8. **Antibody Negative** - An individual who has no antibodies to HIV as determined by both ELISA and Western Blot blood tests.

9. **Confirmed Knowledge of HIV Antibody Status** - An individual who believes his/her antibody status to be either positive or negative because he/she has participated in HIV testing and received his/her test results (clinical proof).

10. **Presumed Knowledge of HIV Antibody Status** - An individual who believes his/her antibody status to be either positive or negative without participating in HIV testing and receiving his/her test results (clinical proof). These persons may informally decide their serostatus by learning about HIV transmission issues and judging their risk of exposure.
CHAPTER II
REVIEW OF RELEVANT LITERATURE

The first section of this review presents a survey of published reports documenting the extent of behavioral risk reduction in homosexual/bisexual men and what is known regarding its determinants. The second section examines the major research findings of those studies which have presently explored the effects of knowledge of HIV antibody status on the sexual practices of gay/bisexual men. The number of studies considered in this area is limited owing to the fact that HIV antibody testing was not available to the general public until 1985. The final section presents an overview of the Health Belief Model, which serves as a conceptual framework for understanding an individual's likelihood of using safer sex practices, and assesses the level of influence of important psychosocial and environmental variables which impede this process. Following this review are hypotheses and research questions which will guide this investigation.

Behavioral Risk Reduction in Homosexual/Bisexual Men

Although dissimilar studies are reviewed, a comparative description of three aspects of sexual behavior consistently linked to risk-reduction recommendations are
emphasized: number of sexual partners, frequency of anal intercourse, and use of condoms.

In San Francisco, two major cohorts are being followed to examine trends in sexual practices since the introduction of AIDS-related risk reduction guidelines in the gay community in 1982. The AIDS Behavioral Research Project of the University of California at San Francisco conducted a longitudinal survey of 655 gay men in November 1982, and again in 1983, to determine changes in their sexual practices during that year (McKusick, Horstman and Coates, 1985). The sample was selected to include men (N = 288) in situations normally associated with high-risk behaviors (e.g., bathhouses, gay bars, and sex clubs) and those (N = 367) in low-risk situations (e.g., men not going to the previously mentioned establishments and those in monogamous relationships).

McKusick, Horstman and Coates (1985) found that men in the high-risk group reported slight reductions in numbers of anonymous sexual partners and the practice of anal intercourse; however, there did not appear to be a corresponding increase in the use of condoms during this sexual activity. Men in the low-risk group showed little reduction in unprotected anal intercourse, possibly because they felt immune to HIV as a result of their monogamy.

The researchers point to three factors influencing the behavioral outcomes of this study. The frequent use of sex to relieve stress and tension, and as the supreme expression of a positive gay identity, were related to increased sexual
activity, while memories of a person in the advanced stages of AIDS were related to decreased sexual activity (McKusick, Horstman, and Coates, 1985).

This same cohort was followed up again in 1984, to document any subsequent changes made in risk behaviors since the last survey in 1983 (McKusick et al., 1985). 454 individuals or about 70% of the original sample participated in this second longitudinal research effort. Significant declines in numbers of sexual partners and unprotected anal intercourse occurred in the high-risk group, while only slight reductions in unprotected anal intercourse were noted in the low-risk group. Increased knowledge of and pleasure in safer sex activities, and the desire to avoid risk of HIV infection due to the growing number of associations with friends who were sick with AIDS, were motivating factors for changing unsafe behaviors.

The second major cohort of gay/bisexual men to be monitored for changes in high-risk sexual practices was through the San Francisco Men's Health Study, which was supported by the University of California, Berkeley, School of Public Health. From 1982 to 1984, 1,034 single men were recruited for participation in the study (Winkelstein et al., 1987) from a six kilometer area of the city where the epidemic of AIDS had been most prevalent.

Annual HIV infection rates, measured by conversion to a positive antibody status by those who were previously antibody negative, decreased from an estimated 18.4% from 1982 to 1984, to 5.4% in 1985, and to 4.2% during the first six months of 1986. These declines were associated with reductions (59%) in unprotected anal
intercourse and numbers of anonymous sexual partners (60%). Although no special
efforts to increase knowledge of safer sex practices were made by the research staff,
it was hypothesized that awareness of these activities by the cohort was responsible
for much of the behavioral change. The San Francisco AIDS Foundation and
Health Department widely disseminated AIDS risk-reduction educational materials
in the community (Winkelstein et al., 1987).

Winkelstein et al. (1988) continued to follow the declining trend in HIV
infection rates and high-risk sexual practices in a subsequent follow-up study of the
same cohort in 1987. HIV seroconversion further decreased from 5.9% in 1986, to
0.7% during the last six months of 1987. These declines were attributed to ongoing
reductions (80%) in unprotected insertive and receptive anal intercourse.

Different results have been obtained from studies in other cities. For
example, in the National Institutes of Health's Multicenter AIDS Cohort Study
(MACS) of a large convenience sample of 909 self-identified gay men in Chicago,
only 12.9% and 20.2% completely avoided receptive anal sex and used condoms
during this activity, respectively. In addition, only 24.4% avoided anonymous sexual
partners because of fear of HIV infection. Lack of knowledge of methods of
integrating safer sex practices into their current sexual repertoire was the most
important predictor variable of minimal change in high-risk behaviors for this cohort
(Emmons, Joseph, Kessler, Wortman, Montgomery, and Ostrow, 1986).
Reports from New York and elsewhere raise complex questions about the absolute level of sexual risk for HIV infection that remains among gay men despite important risk reductions in San Francisco. For example, Martin's New York City study (1986) of the behavioral impact of the AIDS epidemic on 745 gay men revealed that only 4% of the entire sample became monogamous, eliminated extra-domestic sexual activity, and increased their use of protected anogenital and orogenital contact between 1984 and 1985. In contrast, 40% of the total sample eliminated at least one of these three aspects of sexual behavior. A large proportion of this sample (45%), however, had sexual behavior patterns consisting of multiple partners, sexual contacts in extra-domestic settings, and unprotected anogenital and orogenital contact.

While Martin (1986) believes that risk reduction messages have clearly gotten through to members of the gay community, increased attention to the development of specific strategies for high-risk sexual activity reduction must continue.

St. Lawrence, Hood, Brasfield and Kelly (1989) conducted studies of gay men's sexual practices in Birmingham, Alabama and Tupelo, Mississippi (combined N = 163) to compare reductions in high-risk behavior in two low-prevalence AIDS areas with those occurring in Atlanta, Georgia (N = 127), a high-prevalence area. The investigators contend that it is important to understand the dynamics of risk behavior in smaller cities because most of this epidemiological research has tended to be concentrated in urban areas with large numbers of AIDS cases.
Gay men in Atlanta were found to have had a greater number of sexual partners, were more knowledgeable of HIV transmission issues, were much more likely to engage in low-risk practices such as mutual masturbation or body rubbing (61%), and had unprotected anal intercourse (13%) less frequently than gay men in the two smaller cities. The most common sexual practices among gay men in Birmingham and Tupelo were unprotected orogenital, oroanal, and anogenital contact (63.8%) (St. Lawrence, Hood, Brasfield, and Kelly, 1989).

A similar study was conducted of 355 gay males in the spring of 1989, in three other low-prevalence AIDS cities: Monroe, Louisiana, Hattiesburg, Mississippi, and Biloxi, Mississippi (Kelly, St. Lawrence, Brasfield, Stevenson, Diaz, and Hauth, 1990). Eighty-three percent of the participants reported sexual activity over the two month study period. Of that number, 52% reported having one partner while 48% reported having multiple sexual partners. Twenty-five percent of all respondents reported engaging in unprotected insertive, and 23% unprotected receptive, anal intercourse during the same time period.

Kelly et al. (1990) concluded that rates of high-risk sexual behavior in these three cities were much greater than those recently reported for gay men in most large AIDS epicenters. For example, the percentage of participants in this study practicing unprotected anal intercourse during the study period was higher than that found in gay men in San Francisco practicing the same behavior during the same time period. The authors assert that it is premature to assume that effectively made
changes needed to reduce risk for new HIV infection in large-city cohorts are
generalizable to smaller cities.

Kelly et al. (1990) hypothesize that higher levels of unsafe sexual practices
continue to persist in small cities because gay men have fewer social supports for
making high-risk behavior changes, do not benefit from well-organized gay
community educational resources which actively encourage efficient
behavioral change, and still perceive AIDS as a distant threat.

Effects of Knowledge of HIV Antibody Status on the Sexual Practices of Gay and
Bisexual Men

Without a vaccine against HIV or curative treatments for AIDS-related
illnesses (e.g., cytomegalovirus, Karposi's sarcoma, and dementia), the primary
means available for controlling the AIDS epidemic is through education and
antibody testing to effect the self-regulation of transmission risk behavior (Coates
et al., 1988; Martin, Garcia, and Beatrice, 1989).

Data from the following studies provide information about the sexual
behavior of gay/bisexual men subsequent to HIV antibody testing. Particular
attention is again paid to decreases in multiple sexual partners, reductions in
unprotected anal intercourse, and increased use of condoms as primary methods of
preventing the spread of HIV and reducing the rate of development of clinical
disease in the gay/bisexual population.
McCusker, Stoddard, Mayer, Zapka, Morrison, and Saltzman (1988) assessed the effects of HIV antibody testing on the subsequent use of unprotected anal intercourse among 270 homosexually active men who frequented a Boston community health center between 1985 and 1987. Sexual practices profiles were developed for each participant six months prior to and after testing. Twenty-five percent of the men were seropositive and 75% were seronegative. At initial contact, 39% (group 1) reported either no insertive anogenital contact or consistent use of a condom for this practice. Fifty-one percent (group 2) reported either no receptive contact or no anal exposure to ejaculate during receptive contact. Ten percent (group 3) reported consistent unprotected insertive and receptive anogenital contact.

During follow-up, 79% of those in groups one and two continued to report no unprotected anogenital contact, while 21% reported some unprotected contact. No statistical effect of test awareness on these outcomes was detected. However, of the initial 10% (N = 27 in group 3) who reported unprotected contact, 33% (seropositive men) reported subsequent change to protected contact, while 57% (seronegative men) still practiced this high-risk behavior. Ten percent of this group ceased unprotected contact altogether, however, no statistical effect of test awareness on this outcome was detected. The researchers concluded that HIV antibody testing alone did not significantly alter high-risk behaviors in their study. They recommended that intensive counseling to lower risk behaviors in seronegative gay/bisexual men continue as a means of reducing any false sense of immunity to
HIV that this group might have as a result of learning their antibody status (McCusker et al., 1988).

Research concerning the effects of knowledge of antibody status on sexual behaviors in 112 gay men in Washington, D.C. and New York City was conducted by Wiktor et al. (1990) in 1987. The investigators interviewed 51 seropositive and 61 seronegative men who entered the study to explore perceived changes in high-risk practices associated with antibody status since 1986.

Little difference in median number of sex partners for each group (HIV+ = 3 and HIV- = 2) was found during the year of interest; however, 65% of the seropositives as compared to 59% of the seronegatives engaged in anogenital contact. Forty-five percent of the seropositive group reported using condoms during anal receptive intercourse while 33% did not use condoms. Seronegatives participating in the same activity reported identical preferences -- 25% reported condom use and 25% reported nonuse (Wiktor et al., 1990).

Unlike the previous study (McCusker et al., 1988), slightly more gay men in this cohort reported having had anogenital contact. However, seropositive men in both studies were more likely to increase their condom use as opposed to their seronegative counterparts. These gay men still appear to be willing to take dangerous chances where their HIV transmission safety is concerned. Wiktor and his colleagues (1990) recommended follow-up counseling sessions for antibody negative gay men to reinforce the benefits of safer sex practices and reduce any
complacency in motivation to avoid high-risk behaviors that might have occurred since initial testing/counseling.

In a final study by Van Griensven and his associates (1989) in Amsterdam, 118 seronegative and 75 seropositive ($N = 193$) homosexual men were interviewed at three consecutive six-month intervals between July 1985, and December 1986, to explore the impact of their HIV antibody statuses on their sexual practices.

Results showed that among seropositives the percentage who performed anogenital contact decreased from 73% during the first interval to 61% during the third interval. Among seronegatives, the practice of anogenital contact decreased from 44% in 1985, to 29% in 1986. While univariate statistics for condom use were not clearly presented, researchers noted that seropositives were more likely to use condoms during anogenital contact than their seronegative counterparts (Van Griensven et al., 1989). This pattern of condom use was also confirmed in a reasonably similar cohort of 283 gay men in New York City, who were recruited by Martin, Garcia, and Beatrice (1989) to observe changes in anogenital practices between 1986 and 1987.

**Conceptual Framework: The Health Belief Model**

The Health Belief Model (HBM) was originally formulated in the 1950’s by Hochbaum and his associates, psychologists at the U.S. Public Health Service, to better understand individuals' compliance with preventative disease measures and
use of screening tests for the early detection of asymptomatic disease (e.g., use of screening tests for tuberculosis and cervical cancer and compliance with preventive measures against dental disease, polio, and influenza). The model was expanded in the early 1970's by Becker and his associates at Johns Hopkins to provide information about relevant sociodemographic variables (e.g., level of education; social network support; personality traits; age, race, sexual orientation, ethnicity) which may decrease the likelihood of taking actions to maintain positive health or to avoid illness (Jette, Cummings, Brock, Phelps, and Naessens, 1981; Janz and Becker, 1984; Maiman and Becker, 1974; Rosenstock, 1974).

Janz and Becker (1984) describe the model's theoretical origins and basic components:

The basic components of the HBM are derived from a well-established body of psychological and behavioral theory whose various models hypothesize that behavior depends mainly upon two variables: (1) the value placed by the individual on a particular goal; and (2) the individual's estimate of the likelihood that a given action will achieve that goal. When these variables were conceptualized in the context of health-related behavior, the correspondences were: (1) the desire to avoid illness (or if ill, to get well); and (2) the belief that a specific health action will prevent {decrease or resolve} the illness (i.e., the individual's estimate of the threat of illness, and of the likelihood of being able, through personal action, to reduce that threat) (p. 2).

In addition to individual sociodemographic variables, the following five dimensions of the current model (see Figure 1) are combined to reasonably predict or understand the individual's willingness to take preventative health measures:
Figure 1

Basic Elements of the Health Belief Model
1. **Perceived susceptibility** - An individual's subjective perception of vulnerability or risk of contracting a condition (Janz and Becker, 1984).

2. **Perceived severity** - An individual's belief that contracting a condition would have a moderately serious impact on life (e.g., disability, pain; interference with work or social relations) (Cummings, Becker, and Maile, 1980).

3. **Cues to action** - Internal or external stimuli (e.g., private perceptions, educational pamphlets, test results) which suggest appropriate health behavior (Cummings, Becker, and Maile, 1980).

4. **Perceived benefits** - An individual's belief that taking recommended health actions would be efficacious and feasible in reducing his/her susceptibility or severity to a condition (Cummings, Becker, and Maile, 1980).

5. **Perceived barriers** - The potential negative aspects of following through with a particular health action may act as impediments to undertaking the recommended behavior. A cost-benefit analysis is thought to occur wherein the individual weighs the action's effectiveness against perceptions that it may be expensive, dangerous (e.g., side effects), unpleasant (e.g., painful, difficult, stressful), inconvenient or time-consuming (Janz and Becker, 1984).

Several researchers (Jette, Cummings, Brock, Phelps, and Naessens, 1981; Maiman, Becker, Kirscht, Haefner, and Drachman, 1977) have also demonstrated across numerous samples that the composition and overall replicability of the
HBM's basic components support the theoretical assumption that its five dimensions are sufficiently distinct to be considered different constructs or beliefs.

The Health Belief Model has been considered in the identification and assessment of the influence of important psychosocial variables on the practice of high- and low-risk behaviors in HIV seropositive blood donors at the New York Blood Center. This information was subsequently instrumental in assisting NYBC staff in developing an HIV risk-reduction intervention program for these individuals (Cleary et al., 1986).

Cleary and his associates (1986) identified a lack of social support and stress (examples of HBM perceived barriers) in making needed changes in high-risk behaviors influential in their maintenance. Helping donors focus on concrete activities that will reduce their behavioral risks, providing emotional support during HIV testing interpretation, and developing a plan (an HBM cue to action) to lessen social isolation were successful in promoting low-risk or safer behaviors.

It is believed that the Health Belief Model will be equally useful in elucidating those variables which influence the use of high-risk and safer sex practices among participants in the present study. For example, the use of condoms as a preventative health measure against exposure to HIV could result from the following hypothetical HBM model of cognitive and behavioral processes.

After a discussion with friends, a gay male perceives that he is susceptible to HIV because he regularly participates in unprotected anogenital intercourse with
anonymous partners. He understands that infection with HIV would have a severe impact on his physical and social functioning because of its debilitating illness features. With encouragement from his friends he decides to undergo HIV antibody testing/counseling. Upon learning of his negative serostatus and ways to practice safer sex (cues to action), the gay male decides to use condoms as a way of avoiding future exposure to the virus (a perceived benefit). The only minor barrier he has encountered in taking this new health action is the reluctance of some of his potential sexual partners to use condoms. The gay male has decided to firmly refuse anogenital intercourse with these men because he now recognizes the vulnerability to HIV infection which is incurred by the practice of this high-risk behavior.

**Research Questions and Hypotheses**

The primary objective of this study is to explore the effects of knowledge of HIV antibody status on high-risk sexual behaviors and safer sex practices in a cohort of gay and bisexual men. It further seeks to assess the influence of pertinent psychosocial and environmental variables on the practice of unsafe and safer sex. The Health Belief Model will assist the investigator in discovering and explaining the interrelationship between these variables as they combine to sustain both high- and low-risk sexual behaviors.

The following research questions and hypotheses have been developed to guide the process of inquiry designed to meet the objectives of this study.
Question 1. To what extent do psychosocial and environmental variables influence the practice of unprotected insertive anogenital intercourse among participants in this study?

Question 2. To what extent do psychosocial and environmental variables influence the practice of unprotected receptive anogenital intercourse among participants in this study?

Question 3. To what extent do psychosocial and environmental variables influence the use of condoms among participants in this study?

Hypothesis 1. Ho: There is no statistically significant difference between seropositives and seronegatives in their practice of insertive orogenital intercourse.

Hypothesis 2. Ho: There is no statistically significant difference between seropositives and seronegatives in their practice of receptive orogenital intercourse.

Hypothesis 3. Ho: There is no statistically significant difference between seropositives and seronegatives in their practice of unprotected insertive anogenital intercourse.

Hypothesis 4. Ho: There is no statistically significant difference between seropositives and seronegatives in their practice of protected insertive anogenital intercourse.

Hypothesis 5. Ho: There is no statistically significant difference between seropositives and seronegatives in their practice of protected receptive anogenital intercourse.

Hypothesis 6. Ho: There is no statistically significant difference between seropositives and seronegatives in their practice of unprotected receptive anogenital intercourse.

Hypothesis 7. Ho: There is no statistically significant difference between seropositives and seronegatives in their practice of mutual masturbation.

Hypothesis 8. Ho: There is no statistically significant difference between seropositives and seronegatives in their practice of body rubbing.

Hypothesis 9. Ho: There is no statistically significant difference between seropositives and seronegatives in their use of condoms during sexual activity.
CHAPTER III
RESEARCH METHODOLOGY

The plan or strategy for carrying out this research will be described in detail in this section including the research design, population identification and sample selection, instrumentation, reliability and validity issues, data collection procedures, and statistical techniques for data analysis.

Research Design

An exploratory descriptive research design was employed, using a survey instrument for data collection. This type of ex post facto research seeks to describe, and where possible, explain the relationship among variables at a given point in time (Ary, Jacobs, and Razavieh, 1985). The survey research design used in this study describes the effects of knowledge of HIV antibody status (independent variable) on high-risk and safer sex practices (dependent variables), and examines or explains relationships among psychosocial and environmental variables which influence gay/bisexual males’ practice of the dependent variables.
According to Kerlinger (1973), survey research is well suited for obtaining "the vital facts of people, and their beliefs, opinions, attitudes, motivations, and behavior" (p. 411). In addition to its providing a wide scope of information, it provides confidentiality for the respondents, eliminates interviewer bias, and any threat the interviewer may represent to the respondent.

Weaknesses of this design as discussed by Kerlinger (1973) include the concern that questionnaire construction may lend itself to misinterpretation. The investigator used expert consultation in the development of the instrument and pretesting to minimize this weakness. Secondly, the non-response rate with mailed questionnaires may be high, distorting the findings. Procedures followed by this investigator were designed to encourage a high rate of response from participants included in the study. Finally, survey research may be costly in terms of time and money. To reduce this weakness, a realistic timetable for returns was established; and, whenever possible, measures were built in to minimize costs.

Sample Selection

The vast majority of research on human sexual behavior has used non-probability sampling procedures in which information is obtained from specific groups such as college students, gay organizations, clinic patients, or specific residential communities (Reinisch, Sanders, and Ziemba-Davis, 1988). Stall, Coates, and Hall (1988) state that
... it is probably not possible to draw a random sample of men who engage in homosexual behavior, because gay men are not enumerated and defining the level of homosexual behavior necessary to constitute an individual definition of "homosexual" is fraught with difficulties. For these reasons and others, researchers have primarily relied on convenience or purposive sampling techniques in studying risk reduction among self-identified gay or bisexual men. Methods to enlist samples of gay men have most typically included street or tavern solicitation, solicitation at public meetings of gay men, sampling of clinical populations, and advertisements in gay newspapers (p. 883).

A convenience sample of gay and bisexual men enlisted from the above mentioned sample sites in Columbus and Cincinnati, Ohio, and Lexington, Kentucky was obtained for this study. All three cities have served as epicenters for AIDS in their respective states. However, Lexington, Kentucky was chosen because it has been a non-urban area of relatively low-prevalence for AIDS. As previously reported in the Review of Related Literature section, low-prevalence areas should be monitored by public health officials to determine if high-risk sexual practices previously documented are still occurring. The target population from which this sample was drawn includes those gay/bisexual men who appear at or have access to these sites.

Special attention was given to selecting those locales (e.g., fellowship and support groups; social service and clinical agencies) which were recognized in state-wide gay newspapers and magazines as being frequented by gay/bisexual men who were likely to have received HIV antibody testing/counseling and risk-reduction education. These 17 sites and their locations are shown in Table 1.
Table 1

Sample Selection Sites

<table>
<thead>
<tr>
<th>Site</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gay Men’s Support Group, Newman Center, OSU Campus</td>
<td>Columbus, Ohio</td>
</tr>
<tr>
<td>Columbus AIDS Task Force</td>
<td>Columbus, Ohio</td>
</tr>
<tr>
<td>Stonewall Union</td>
<td>Columbus, Ohio</td>
</tr>
<tr>
<td>HIV+ Support Group, Affirmations Psychotherapy Center</td>
<td>Columbus, Ohio</td>
</tr>
<tr>
<td>Infectious Diseases Clinic, OSU Hospitals</td>
<td>Columbus, Ohio</td>
</tr>
<tr>
<td>OSU Gay/Lesbian Student Alliance</td>
<td>Columbus, Ohio</td>
</tr>
<tr>
<td>Stonewall Union Reports Advertisement Contacts</td>
<td>Columbus, Ohio</td>
</tr>
<tr>
<td>OSU Lantern Advertisement Contacts</td>
<td>Columbus, Ohio</td>
</tr>
<tr>
<td>The Boys’ Club,-OSU Gay Faculty/Staff Support Group</td>
<td>Columbus, Ohio</td>
</tr>
<tr>
<td>Investigator’s Personal Contacts</td>
<td>Columbus, Ohio</td>
</tr>
<tr>
<td>Cincinnati Jacks Club</td>
<td>Cincinnati, Ohio</td>
</tr>
<tr>
<td>AIDS Volunteers of Cincinnati Educational Support Group</td>
<td>Cincinnati, Ohio</td>
</tr>
<tr>
<td>Gay and Lesbian Coalition of Greater Cincinnati</td>
<td>Cincinnati, Ohio</td>
</tr>
</tbody>
</table>
Table 1 (Continued)

<table>
<thead>
<tr>
<th>Site</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIDS Volunteers of Cincinnati HIV+ Support Group</td>
<td>Cincinnati, Ohio</td>
</tr>
<tr>
<td>GAYBEAT Newspaper Advertisement Contacts</td>
<td>Cincinnati, Ohio</td>
</tr>
<tr>
<td>Fayette County Health Department HIV Anonymous Testing Program</td>
<td>Lexington, Kentucky</td>
</tr>
<tr>
<td>The Bar</td>
<td>Lexington, Kentucky</td>
</tr>
</tbody>
</table>

The total sample consisted of 166 gay/bisexual men from ten sites in Columbus and five in Cincinnati, Ohio, and two sites in Lexington, Kentucky.

Instrumentation

A suitable instrument for measuring the variables for the purpose of this investigation could not be found in the literature; therefore, a questionnaire (see Appendix B for a copy) was designed by the researcher. Instruments used in two previous HIV behavioral risk-reduction studies (McCusick et al., 1988; Cleary et al., 1988) were obtained by the researcher to assist in the development of appropriate questionnaire items. The instrument has eight sections and 81 items. Section A contains eight items designed to collect demographic data from respondents such as their sexual orientation, age, education, income, and ethnicity.
Section B contains nine items which ask respondents about participation in HIV antibody testing, their test results, awareness of HIV transmission and risk-reduction measures, and perceived risk for contracting the virus. Individuals not receiving antibody testing were asked to designate a presumed serostatus.

Section C has nine items which query individuals regarding numbers of male and female sexual partners, and frequency of sexual contact during the six months prior to completing the questionnaire.

Section D contains 16 items on a five-point Likert scale which ask respondents about their participation in specific high-risk and safer sex practices during the past six months.

Sections E and F contain 10 four-point Likert scale items which ask about respondents' and their partners' use of condoms, respectively, during sexual activity over the previous six months.

Section G has six items designed to collect information about respondents' use of spermicides and contact with partner blood during sexual activity over the past six months.

Section H has 23 five-point Likert scale items which ask respondents' about their attitudes and beliefs regarding a variety of statements concerning HIV transmission issues; efficacy in changing high-risk behaviors, and practicing safer sex.
Instrument Reliability and Validity

Researchers investigating the reliability of self-reported sexual behavior data (e.g., demographics, including sexual orientation; health and sexual practices) have used test-retest reliability (TRTR) as measured by the Kappa statistic. "TRTR measures the ability of a person to recall a past occurrence consistently" (Saltzman, Stoddard, McCusker, Moon, and Mayer, 1987, p. 692).

An investigation of sexual behavior data reported in HIV seroepidemiologic studies in Chicago and Boston revealed that the highest degree of TRTR was found with demographic information. Self-reported sexual practices for the previous six months generally had the next highest degree of reliability. Questions examining behavioral changes over the previous five years had the lowest reliability (Stall, Coates, and Hoff, 1988; Saltzman, Stoddard, McCusker, Moon, and Mayer, 1987).

To increase the reliability of the instrument used in this study, respondents were asked to provide information about their high-risk sexual behaviors and safer sex practices during the six months prior to completing the questionnaire.

To assure face validity, the instrument was evaluated by members of the dissertation committee, a staff person from the Ohio Department of Health’s AIDS Activities Unit, and a member of the AIDS Volunteers of Lexington, Kentucky. It was determined that the questionnaire adequately measured the
relationship between HIV antibody status and sexual practices in gay/bisexual men. The instrument was further pretested by 10 gay male volunteers who participated in various gay support groups in Columbus, but did not subsequently participate in the study. Participants in the pretest were contacted by the investigator and asked to complete the questionnaire, and give feedback regarding its readability, clarity, and usefulness in obtaining information about sexual practices. Helpful suggestions were made and subsequently reflected in the final survey instrument.

The questionnaire was submitted to and approved by the OSU Human Subjects Review Committee. A special request for waiver of written consent by participants to insure anonymity was also granted by this committee (see approval form in Appendix C).

Data Collection Procedures

The researcher initially solicited support for the study by phoning designated contact persons (e.g., administrators, social workers, nurses, physicians, paraprofessional facilitators, proprietors) within each agency or group during March 1990, to explain the objectives of the study and encourage their participation. Contact persons were asked to be responsible for placing questionnaires on their groups’ literature or resource tables, and informing clients in writing and verbally that instruments were available. The contacts were also asked to deter-
mine the number of questionnaires likely to be used by those gay/bisexual men coming to their facilities. The investigator subsequently visited several support groups and explained the purpose of the study, and encouraged participation among members.

Reinisch, Sanders, and Ziemba-Davis (1988) state that

... people may hesitate to volunteer for studies of sexual behavior and AIDS risk for a variety of reasons: concern about interviewer reactions, loss of social prestige, or legal prosecution; denial (perhaps even to themselves) of their sexual experiences; desire to avoid painful memories; a lack of sexual experience; or the belief that the specific topic under investigation is personally irrelevant. In spite of these obstacles, reluctant men and women must be convinced of the value of their contribution if scientifically accurate epidemiological data are to be obtained (p. 924).

A number of strategies to increase participation in these studies have been suggested by the above mentioned researchers (1988) and were subsequently followed by this investigator. First, the title of the instrument and description of the study used in all aspects of subject recruitment should be as broad as possible so as not to frighten, intimidate, alienate, or inadvertently exclude any subject. Cognizant of this recommendation the investigator: (a) entitled the instrument used in this study the "Sexual Practices Questionnaire"; and (b) informed participants in all written communication (e.g., advertisements, questionnaire cover letter and instructions) that the primary objective of the study was to accurately describe the sexual/lifestyle practices of gay and bisexual men in response to the current AIDS epidemic.
Secondly, participants were told verbally and in writing (e.g., during informational sessions at support groups and in the questionnaire instructions) that the investigator held no biased opinions regarding any of the sexual activities in which they have or have not engaged, and assured them that their questionnaires would be held in absolute confidence.

Finally, Reinisch, Sanders, and Ziemba-Davis (1988) recommend that investigators appeal to altruism, group loyalty, and to social or moral obligation in order to recruit subjects.

The investigator appealed to all of the above by informing participants in writing (e.g., instrument cover letter) that data from their completed questionnaires would be published in gay periodicals as part of a continuing public health effort to prevent the spread of HIV in this community.

Two-hundred and fifty-five questionnaire packets were hand-delivered or mailed to each agency contact person. Gay/bisexual men who responded to advertisements in newspapers elected to have their packets mailed to an address to insure anonymity.

Each questionnaire packet contained a cover letter describing the study, an OSU Human Subjects Review Committee protocol approval number, instructions for returning the instrument, and methods for contacting the investigator directly with any concerns or questions regarding the study; an instrument with instructions for its completion and return; and an attached prestamped, pread-
dressed envelope. Departmental teaching award monies were used by the investigator to defray costs of advertising, duplicating, and mailing the instrument.

Agency contact personnel were told that the study would run from early April to the beginning of June 1990. Each contact person was phoned by the researcher during the last week of April to inquire about a need for more questionnaires and to monitor rates of distribution. Data collection was terminated on June 5, 1990, with 166 questionnaires returned; 100 from Columbus, 39 from Cincinnati, and 27 from Lexington, Kentucky. A final phone call from the investigator to each contact confirmed that in their judgement those gay and bisexual men who frequented their agencies/groups had been given ample time to receive and complete a questionnaire. A complete return rate of 70% is felt to be very good by many researchers (Powers, Meenaghan, and Toomey, 1985). The return rate of 65% in this study is considered to be above average.

**Data Analysis Procedures**

Responses to questionnaire items (quantitative data) were analyzed using SAS statistical program, version 6.0, for personal computers. Analysis consisted of descriptive and inferential statistics.

Demographic, sexual practices, and attitudinal data were analysed using descriptive statistics. Frequencies, measures of central tendency, and dispersion were obtained for each data set.
Hypothesis testing was accomplished with the use the t test for independent samples. A hierarchical multiple regression technique was used to assess the influence of psychosocial and environmental variables, derived from the combined dimensions of the Health Belief Model, on the frequency of participants’ use of high-risk and safer sex practices.
CHAPTER IV
ANALYSIS AND FINDINGS

This research was designed to examine the relationship between knowledge of HIV antibody status and sexual practices in gay and bisexual men. It also explored the influence of unique psychosocial and environmental variables on the practice of high-risk sexual behaviors and safer sex practices in the same cohort.

This chapter presents the findings of an analysis of data collected from self-reports of gay/bisexual men obtained through the use of a mailed questionnaire. These findings are presented in four sections: (1) respondents' sociodemographic characteristics, including results of HIV antibody testing; and practice of unprotected insertive and receptive anogenital intercourse; (2) their awareness of HIV transmission and risk-reduction measures, including perceived risk for contracting the virus; (3) results of hypothesis testing concerning the relationship between HIV antibody status and high-risk and safer sex practices; and (4) assessment of the influence of psychosocial and environmental variables derived from the Health Belief Model on the frequency of use in selected high-risk
behaviors, and on the use or nonuse of safer sex practices among members of this cohort.

Sociodemographic Characteristics of Respondents and Results of HIV Antibody Testing

AGE. Respondents were asked to list their present age in years. Participants ranged in age from 18 to 68 years. The mean age was 30.56 years, median = 30, and mode = 31 (see Table 2).

Table 2

CENTRAL TENDENCY MEASURES OF RESPONDENTS’ AGE

<table>
<thead>
<tr>
<th>Highest Age = 68</th>
<th>Lowest Age = 19</th>
<th>Mean = 30.56</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median = 30</td>
<td>Mode = 31</td>
<td>Range = 50</td>
</tr>
<tr>
<td>Std. Dev. = 7.57</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SEXUAL ORIENTATION. Respondents were asked to select one of two categories which identified their sexual orientation. One-hundred and fifty-nine or 95.8% chose homosexual male and seven or 4.2% chose bisexual male.

RACE/ETHNIC BACKGROUND. Respondents were asked to select one of five categories that identified their racial or ethnic background. No one
selected American Indian/Alaskan Native or Asian/Pacific Islander as a category to describe themselves. Ninety-two percent considered themselves to be White, non-Hispanic, 7% = Afro-American, non-Hispanic, and 2% were identified as Hispanic (see Table 3).

Table 3
FREQUENCIES AND PERCENTAGES OF RESPONDENTS BY RACE/ETHNICITY

<table>
<thead>
<tr>
<th>Race</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afro-American, non-Hispanic</td>
<td>11</td>
<td>6.6</td>
</tr>
<tr>
<td>White, non-Hispanic</td>
<td>152</td>
<td>91.6</td>
</tr>
<tr>
<td>American Indian or Alaskan Native</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Hispanic</td>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>Asian or Pacific Islander</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>166</td>
<td>100.0</td>
</tr>
</tbody>
</table>

EDUCATION. Respondents were asked to designate the highest grade completed at the time they filled out the questionnaire. Highest grade attained was 21 (or completion of a doctorate) and the lowest grade was 9 (or the completion of the first year of high-school). The mean grade completed was
15.53, median = 16, and mode was 16. It appears that many participants in this sample have completed an undergraduate education (see Table 4).

Table 4

CENTRAL TENDENCY MEASURES OF RESPONDENTS' GRADE COMPLETED

<table>
<thead>
<tr>
<th>Highest Grade</th>
<th>Lowest Grade</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>9</td>
<td>15.53</td>
</tr>
<tr>
<td>Median</td>
<td>Mode</td>
<td>Range</td>
</tr>
<tr>
<td>16</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td></td>
<td>2.40</td>
</tr>
</tbody>
</table>

EMPLOYMENT. Respondents were asked if they were currently employed at one or more jobs for pay and to designate an average number of hours worked per week. One-hundred and forty-eight or 89.2% of participants reported being employed while 18 or 10.8% were not employed. Highest number of hours worked per week was 99 and the lowest was 10. The mean number of hours worked was 41.10, median = 40, and mode was 40 (see Table 5).

Table 5

CENTRAL TENDENCY MEASURES OF RESPONDENTS' NUMBER OF HOURS WORKED PER WEEK

<table>
<thead>
<tr>
<th>Highest # of Hrs.</th>
<th>Lowest # of Hrs.</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>99</td>
<td>10</td>
<td>41.10</td>
</tr>
<tr>
<td>Median</td>
<td>Mode</td>
<td>Range</td>
</tr>
<tr>
<td>40</td>
<td>40</td>
<td>89</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.82</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
INCOME. Participants were asked to designate approximately how much income they earned in 1989. The responses ranged from a high of $99,000 to a low of $1,500. The mean income was $22,631.99, median = $20,000, and mode was $20,000 (see Table 6).

Table 6

CENTRAL TENDENCY MEASURES OF RESPONDENTS' INCOME

<table>
<thead>
<tr>
<th>Highest Income = $99,000</th>
<th>Lowest = $1,500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean = $22,631.99</td>
<td>Mode = $20,000</td>
</tr>
<tr>
<td>Median = $20,000</td>
<td>Range = $98,000</td>
</tr>
<tr>
<td>Std. Dev. = $15,270.35</td>
<td></td>
</tr>
</tbody>
</table>

ANOGENITAL INTERCOURSE. Participants were asked how frequently they had participated in unprotected receptive and insertive anogenital intercourse during the past six months. Likert scale responses ranged from "never" to "4 or more times per week." 69.7% and 12.9% of the respondents indicated they had "never" participated in unprotected insertive anogenital intercourse or did so "less than once a month," respectively (see Table 7). 71.4% and 16.9% of the respondents indicated they had "never" participated in unprotected receptive anogenital intercourse or did so "less than once a month," respectively (see Table 8).
### Table 7

**FREQUENCIES AND PERCENTAGES OF RESPONDENTS’ USE OF UNPROTECTED INSERTIVE ANOGENITAL INTERCOURSE**

<table>
<thead>
<tr>
<th>Response</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>108</td>
<td>69.7</td>
</tr>
<tr>
<td>Less than once a month</td>
<td>20</td>
<td>12.9</td>
</tr>
<tr>
<td>1-3 times per month</td>
<td>14</td>
<td>9.0</td>
</tr>
<tr>
<td>1-3 times per week</td>
<td>11</td>
<td>7.1</td>
</tr>
<tr>
<td>4 or more times per week</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>155</td>
<td>100.0</td>
</tr>
</tbody>
</table>

### Table 8

**FREQUENCIES AND PERCENTAGES OF RESPONDENTS’ USE OF UNPROTECTED RECEPTIVE ANOGENITAL INTERCOURSE**

<table>
<thead>
<tr>
<th>Response</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>110</td>
<td>71.4</td>
</tr>
<tr>
<td>Less than once a month</td>
<td>26</td>
<td>16.9</td>
</tr>
<tr>
<td>1-3 times per month</td>
<td>9</td>
<td>5.8</td>
</tr>
<tr>
<td>1-3 times per week</td>
<td>9</td>
<td>5.8</td>
</tr>
<tr>
<td>4 or more times per week</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>154</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**HIV ANTIBODY TESTING.** Participants were asked if they had taken the HIV antibody (blood) test and to report their results. Those who had not taken the test or received their results at the time they completed the
questionnaire were asked if they believed their serostatus was positive or negative. These responses are referred to as "presumed statuses." One-hundred and twenty-seven or 76.5% of respondents had taken the HIV antibody test while 39 or 23.5% had not sought testing. Most of the participants (54.8%) received negative results, however, 18.7% were positive for HIV antibody, and 26.5% (including 3 individuals who had not yet received their test results) presumed their status was negative in the absence of confirmed test results. No respondent in the last group believed they were seropositive for HIV (see Table 9).

Table 9

FREQUENCIES AND PERCENTAGES OF RESPONDENTS' HIV ANTIBODY TEST RESULTS

<table>
<thead>
<tr>
<th>Results</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV Antibody Positive</td>
<td>31</td>
<td>18.7</td>
</tr>
<tr>
<td>HIV Antibody Negative</td>
<td>91</td>
<td>54.8</td>
</tr>
<tr>
<td>Presumed HIV Antibody Negative</td>
<td>44</td>
<td>26.5</td>
</tr>
<tr>
<td>Presumed HIV Antibody Positive</td>
<td>0</td>
<td>00.0</td>
</tr>
<tr>
<td>Total</td>
<td>166</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Respondents’ Awareness of HIV Transmission Issues and Perceived Risk of HIV Infection

AWARENESS OF HIV TRANSMISSION ISSUES. Participants were asked to respond to two Likert-scaled statements concerning their awareness of HIV transmission issues:

1. I have read pamphlets/articles or heard/seen advertisements concerning HIV transmission.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>76.5%</td>
<td>22.3%</td>
<td>1.2%</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Total: 100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. I have talked with friends, professionals, and/or attended educational/support meetings about HIV issues.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>55.4%</td>
<td>30.7%</td>
<td>9.6%</td>
<td>3.6%</td>
<td>0.6%</td>
<td></td>
</tr>
<tr>
<td>Total: 100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It appears that a clear majority of the gay/bisexual men in this sample agree they have been exposed to visual and print media concerning HIV transmission issues (98.8%) or discussed them with others, including professionals (86.1%).
PERCEIVED RISK OF HIV INFECTION. Participants were asked to respond to two Likert-scaled statements concerning their perceptions of behavioral risk of HIV infection:

1. On the basis of my participation in the activities I have selected (from questions 1 and 2 above), I do not believe I have placed myself at risk for contracting the HIV virus.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.7</td>
<td>30.7</td>
<td>11.4</td>
<td>15.7</td>
<td>17.5</td>
</tr>
</tbody>
</table>

Total: 100%

2. I have practiced safer sex for the last year.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>41%</td>
<td>46.4%</td>
<td>4.8%</td>
<td>6%</td>
<td>1.8%</td>
</tr>
</tbody>
</table>

Total: 100%

While most respondents (87.4%) agreed they had practiced safer sex during the last year, only a small majority of the sample agreed they had not placed themselves at risk for contracting HIV (55.4%), and 33.2% believed they had placed themselves at risk for HIV infection. These results seem plausible when one compares respondents’ (N = 156) use of condoms during all sexual activities
over the last six months; 55.8% reported using condoms while 44.2% did not use
them during all sexual activities.

Results of Hypothesis Testing

The nine hypotheses were examined through the application of the t test for
independent samples, which is a bivariate statistical procedure. In all of the
hypothesis testing, the .05 level of significance was used to accept or reject the
null form. Since there were no occurrences in the presumed seropositive cate­
gory, a comparison with presumed seronegatives will not be reflected in the
hypothesis testing.

HYPOTHESIS 1. There is no statistically significant difference between
seropositives and seronegatives in their practice of insertive orogenital
intercourse.

The independent t test was used to compare the mean scores between the
two groups to determine if there was a significant difference in their practice of
insertive orogenital intercourse. Results of the test yielded an independent t
statistic of -2.9162; degrees of freedom = 111; two-tailed probability = 0.0043.
The analysis revealed a statistically significant difference between the two groups.
Seronegatives were likely to engage in the practice of insertive orogenital
intercourse more frequently than their seropositive counterparts. The null
hypothesis was rejected (see Table 10).
Table 10

<table>
<thead>
<tr>
<th>Antibody Status</th>
<th>Mean Score</th>
<th>Std. Dev.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seropositive</td>
<td>2.5384</td>
<td>1.0288</td>
<td>26</td>
</tr>
<tr>
<td>Seronegative</td>
<td>3.2068</td>
<td>1.0245</td>
<td>87</td>
</tr>
<tr>
<td>t statistic</td>
<td>-2.9162</td>
<td>df = 111</td>
<td></td>
</tr>
<tr>
<td>probability</td>
<td>0.0043</td>
<td>Total: 113</td>
<td></td>
</tr>
</tbody>
</table>

Mean score values: 2 = less than once per month; 3 = one to three times per week

HYPOTHESIS 2. There is no statistically significant difference between seropositives and seronegatives in their practice of receptive orogenital intercourse.

The independent t test was used to compare the mean scores between the two groups to determine if there was a significant difference in their practice of receptive orogenital intercourse. Results of the test yielded an independent t statistic of -1.8628; degrees of freedom = 111; two-tailed probability = 0.0651. The analysis revealed no statistically significant difference in the practice of receptive orogenital intercourse between seropositivcs and seronegatives. The null hypothesis was accepted (see Table 11).
Table 11

**t TEST FOR ANTIBODY STATUS AND PRACTICE OF RECEPTIVE OROGENITAL INTERCOURSE**

<table>
<thead>
<tr>
<th>Antibody Status</th>
<th>Mean Score</th>
<th>Std. Dev.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seropositive</td>
<td>2.7692</td>
<td>0.9080</td>
<td>26</td>
</tr>
<tr>
<td>Seronegative</td>
<td>3.1954</td>
<td>1.0547</td>
<td>87</td>
</tr>
<tr>
<td><strong>t statistic</strong></td>
<td>-1.8628</td>
<td>df = 111</td>
<td></td>
</tr>
<tr>
<td><strong>probability</strong></td>
<td>0.0651</td>
<td>Total: 113</td>
<td></td>
</tr>
</tbody>
</table>

Mean Score values: 2 = less than once per month; 3 = one to three times per month

**HYPOTHESIS 3.** There is no statistically significant difference between seropositives and seronegatives in their practice of unprotected insertive anogenital intercourse.

The independent t test was used to compare the mean scores between the two groups to determine if there was a significant difference in their practice of unprotected insertive anogenital intercourse. Results of the test yielded an independent t statistic of -1.1598; degrees of freedom = 110; two-tailed probability = 0.2486. The analysis revealed no statistically significant difference in the practice of unprotected insertive anogenital intercourse between seropositives and seronegatives. The null hypothesis was accepted (see Table 12).
Table 12

**t TEST FOR ANTIBODY STATUS AND PRACTICE OF UNPROTECTED INSERTIVE ANOGENITAL INTERCOURSE**

<table>
<thead>
<tr>
<th>Antibody Status</th>
<th>Mean Score</th>
<th>Std. Dev.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seropositive</td>
<td>1.3200</td>
<td>0.8524</td>
<td>25</td>
</tr>
<tr>
<td>Seronegative</td>
<td>1.5862</td>
<td>1.0515</td>
<td>87</td>
</tr>
<tr>
<td>t statistic = -1.1598</td>
<td>df = 110</td>
<td>Total: 112</td>
<td></td>
</tr>
<tr>
<td>probability = 0.2486</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mean score values: 1 = never; 2 = less than once per month

**HYPOTHESIS 4.** There is no statistically significant difference between seropositives and seronegatives in their practice of protected insertive anogenital intercourse.

The independent t test was used to compare the mean scores between the two groups to determine if there was a significant difference in their practice of protected insertive anogenital intercourse. Results of the test yielded an independent t statistic of 0.8697; degrees of freedom = 111; two-tailed probability = 0.3863. The analysis revealed no statistically significant difference in the practice of protected insertive anogenital intercourse between seropositives and seronegatives. The null hypothesis was accepted (see Table 13).
Table 13

* t TEST FOR ANTIBODY STATUS AND PRACTICE OF PROTECTED INSERTIVE ANOGENITAL INTERCOURSE *

<table>
<thead>
<tr>
<th>Antibody Status</th>
<th>Mean Score</th>
<th>Std. Dev.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seropositive</td>
<td>1.8846</td>
<td>0.9930</td>
<td>26</td>
</tr>
<tr>
<td>Seronegative</td>
<td>1.7011</td>
<td>0.9290</td>
<td>87</td>
</tr>
<tr>
<td>t statistic = 0.8697</td>
<td>df = 111</td>
<td>Total:</td>
<td>113</td>
</tr>
<tr>
<td>probability = 0.3863</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mean score values: 1 = never; 2 = less than once per month

**HYPOTHESIS 5.** There is no statistically significant difference between seropositives and seronegatives in their practice of protected receptive anogenital intercourse.

The independent t test was used to compare the mean scores between the two groups to determine if there was a significant difference in their practice of protected receptive anogenital intercourse. Results of the test yielded an independent t statistic of 0.9645; degrees of freedom = 111; two-tailed probability = 0.3369. The analysis revealed no statistically significant difference in the practice of protected receptive anogenital intercourse between seropositives and seronegatives. The null hypothesis was accepted (see Table 14).
Table 14

**t TEST FOR ANTIBODY STATUS AND PRACTICE OF PROTECTED RECEPTIVE ANOGENITAL INTERCOURSE**

<table>
<thead>
<tr>
<th>Antibody Status</th>
<th>Mean Score</th>
<th>Std. Dev.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seropositive</td>
<td>2.0384</td>
<td>1.1482</td>
<td>26</td>
</tr>
<tr>
<td>Seronegative</td>
<td>1.8045</td>
<td>1.0657</td>
<td>87</td>
</tr>
<tr>
<td>t statistic</td>
<td>0.9645</td>
<td>df = 111</td>
<td></td>
</tr>
<tr>
<td>probability</td>
<td>0.3369</td>
<td>Total: 113</td>
<td></td>
</tr>
</tbody>
</table>

Mean Score values: 1 = never; 2 = less than once per month

**HYPOTHESIS 6.** There is no statistically significant difference between seropositives and seronegatives in their practice of unprotected receptive anogenital intercourse.

The independent t test was used to compare the mean scores between the two groups to determine if there was a significant difference in their practice of unprotected receptive anogenital intercourse. Results of the test yielded an independent t statistic of -0.9188; degrees of freedom = 61.1; two-tailed probability = 0.3618. The analysis revealed no statistically significant difference in the practice of unprotected receptive anogenital intercourse between seropositives and seronegatives. The null hypothesis was accepted (see Table 15).
Table 15

**t TEST FOR ANTIBODY STATUS AND PRACTICE OF UNPROTECTED RECEPTIVE ANOGENITAL INTERCOURSE**

<table>
<thead>
<tr>
<th>Antibody Status</th>
<th>Mean Score</th>
<th>Std. Dev.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seropositive</td>
<td>1.3076</td>
<td>0.5491</td>
<td>26</td>
</tr>
<tr>
<td>Seronegative</td>
<td>1.4352</td>
<td>0.8083</td>
<td>85</td>
</tr>
<tr>
<td>t statistic</td>
<td>-0.9188</td>
<td>df = 61.1</td>
<td>Total: 111</td>
</tr>
<tr>
<td>probability</td>
<td>0.3618</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mean Score values: 1 = never; 2 = less than once per month

**HYPOTHESIS 7. There is no statistically significant difference**

between seropositives and seronegatives in their practice of mutual masturbation.

The independent t test was used to compare the mean scores between the two groups to determine if there was a significant difference in their practice of mutual masturbation. Results of the test yielded an independent t statistic of -1.9135; degrees of freedom = 111; two-tailed probability = 0.0583. The analysis revealed a minimal but nonstatistically significant difference between the two groups. This minimal difference indicated, however, that seronegatives were likely to engage in the practice of mutual masturbation slightly more than their seropositive counterparts. The null hypothesis was accepted (see Table 16).
Table 16

**t TEST FOR ANTIBODY STATUS AND PRACTICE OF MUTUAL MASTURBATION**

<table>
<thead>
<tr>
<th>Antibody Status</th>
<th>Mean Score</th>
<th>Std. Dev.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seropositive</td>
<td>3.0769</td>
<td>1.0926</td>
<td>26</td>
</tr>
<tr>
<td>Seronegative</td>
<td>3.5057</td>
<td>0.9749</td>
<td>87</td>
</tr>
</tbody>
</table>

$t$ statistic = -1.9135  $df$ = 111  Total: 113

probability = 0.0583

Mean score value: 3 = one to three times per week; 4 = four or more times per week

HYPOTHESIS 8. **There is no statistically significant difference between seropositives and seronegatives in their practice of body rubbing.**

The independent $t$ test was used to compare the mean scores between the two groups to determine if there was a significant difference in their practice of body rubbing. Results of the test yielded an independent $t$ statistic of -2.3865; degrees of freedom = 111; two-tailed probability = 0.0187. The analysis revealed a statistically significant difference between the two groups. Seronegatives were likely to engage in the practice of body rubbing more frequently than their seropositive counterparts. The null hypothesis was rejected (see Table 17).
Table 17

**t TEST FOR ANTIBODY STATUS AND PRACTICE OF BODY RUBBING**

<table>
<thead>
<tr>
<th>Antibody Status</th>
<th>Mean Score</th>
<th>Std. Dev.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seropositive</td>
<td>3.1538</td>
<td>1.0076</td>
<td>26</td>
</tr>
<tr>
<td>Seronegative</td>
<td>3.6896</td>
<td>1.0036</td>
<td>87</td>
</tr>
</tbody>
</table>

\[ t \text{ statistic } = -2.3865 \quad \text{df } = 111 \quad \text{Total: 113} \]

\[ \text{probability } = 0.0187 \]

Mean score values: 3 = one to three times per week; 4 = four or more times per week.

HYPOTHESIS 9. There is no statistically significant difference between seropositives and seronegatives in their use of condoms during all sexual activities.

The independent t test was used to compare the mean scores between the two groups to determine if there was a significant difference in their use of condoms during all sexual activities. Results of the test yielded an independent t statistic of 0.8178; degrees of freedom = 111; two-tailed probability = 0.4152.

The analysis revealed no statistically significant difference in the use of condoms during all sexual activities between seropositives and seronegatives. The null hypothesis was accepted (see Table 18).
Table 18

**t TEST FOR ANTIBODY STATUS AND USE OF CONDOMS**

<table>
<thead>
<tr>
<th>Antibody Status</th>
<th>Mean Score</th>
<th>Std. Dev.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seropositive</td>
<td>1.3461</td>
<td>0.4851</td>
<td>26</td>
</tr>
<tr>
<td>Seronegative</td>
<td>1.4367</td>
<td>0.4988</td>
<td>87</td>
</tr>
</tbody>
</table>

\[ t \text{ statistic} = -0.8178 \quad \text{df} = 111 \quad \text{Total: 113} \]

\[ \text{probability} = 0.4152 \]

Mean Score values: 1 = never; 2 = less than once a month

---

**Variables Influencing the Use of High-Risk and Safer Sex Practices**

This section presents results of hierarchical regression analysis used to assess the influence of psychosocial and environmental variables derived from the Health Belief Model on this sample’s use of unprotected receptive and insertive anogenital intercourse, and condoms during all sexual activities over the past six months. These variables will be presented in answers to the research questions previously stated in Chapter Two.

Rindfleisch and Bean (1988) summarize the purpose of hierarchical regression as follows:

... This (data analytic technique) differs from simultaneous regression in the way the independent variables are entered into the regression equation. In simultaneous regression, all of the independent variables are entered at the same time. In hierarchical regression, individual or sets of variables are entered into the regression sequentially. With the addition of each model (dimension) there is an increase in the amount of variance explained \((R^2)\) that is of interest. The regression coefficients produced by
multiple linear regression are expressions of the partial relationship between an independent and dependent variable. The values of these coefficients, therefore, can be dramatically different depending on what other variable sets are in the model and at what stage they were entered (p. 514-515).

The variable sets used in this analysis are the basic dimensions of the Health Belief Model with content from selected questionnaire items representing their psychosocial and environmental equivalents (expressed as variable labels). The sets were entered in a sequence of presumed proximity to the recommended preventative health measure or its high-risk counterpart (see Table 19).

Table 19

<table>
<thead>
<tr>
<th>Set</th>
<th>Variable Labels</th>
<th>Question #</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Perceived Susceptibility to HIV</td>
<td>1. Assessment of Behavior as Being Safer for Last 12 Months</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Personal Risk Assessment for Contracting HIV</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>3. Present Behavior will Protect Me From Contracting HIV</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>4. Assessment of Behavior as Being Safer for Last 6 Months</td>
<td>81</td>
</tr>
<tr>
<td>II. Perceived Seriousness of HIV</td>
<td>1. HIV is One of the Most Frightening Diseases Known</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. HIV Inevitably Leads to AIDS</td>
<td>80</td>
</tr>
</tbody>
</table>
### Table 19 (Continued)

<table>
<thead>
<tr>
<th>Set</th>
<th>Variable Labels</th>
<th>Question #</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>III. Sociodemographics</strong></td>
<td>1. Age</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2. Sexual Orientation</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3. Highest Grade Completed</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>4. Number of Hours Worked per Week</td>
<td>7</td>
</tr>
<tr>
<td><strong>IV. Cues to Action</strong></td>
<td>1. Knowledge of HIV Antibody Status</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>2. Exposure to Visual or Print About HIV Transmission</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>3. Friends Encourage Me to Change My Sexual Practices</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>4. Discussion With Friends or Professionals About HIV Issues</td>
<td>15</td>
</tr>
<tr>
<td>**V. Perceived Benefits of</td>
<td>1. Safer Sex Prevents HIV</td>
<td>59</td>
</tr>
<tr>
<td>Recommended or Preventative</td>
<td>2. Using Condoms is Erotic</td>
<td>64</td>
</tr>
<tr>
<td>Health Action**</td>
<td>3. Knowledge of HIV Serostatus Reduces Anxiety About Contracting HIV</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>4. Easier to Have Safer Sex</td>
<td>78</td>
</tr>
<tr>
<td>**VI. Perceived Barriers to</td>
<td>1. Making Changes in Sexual Behavior is Stressful</td>
<td>60</td>
</tr>
<tr>
<td>Recommended or Preventative</td>
<td>2. No Control Over Sexual Impulses</td>
<td>62</td>
</tr>
<tr>
<td>Health Action**</td>
<td>3. Enjoy Sexual Practices Too Much to Change Them</td>
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</tr>
<tr>
<td></td>
<td>4. Difficult to Pay Attention to Safer Sex During Intercourse</td>
<td>69</td>
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<tr>
<td></td>
<td>5. &quot;Turned Off&quot; by Partner's Condom Use</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>6. Limiting Number of Sexual Partners is Difficult</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>7. Using Condoms is a Sexual &quot;Turn-Off&quot; for Me</td>
<td>77</td>
</tr>
</tbody>
</table>
Each research question is restated below followed by a table containing results of the hierarchical regression of those Health Belief Model variable sets likely to influence the use of a high-risk or safer sex practice in this sample.

1. To what extent do psychosocial and environmental variables influence the practice of unprotected insertive anogenital intercourse among participants in this study? (See Table 20.)

<table>
<thead>
<tr>
<th>HBM Variable Set</th>
<th>R²</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Susceptibility</td>
<td>.140</td>
<td>----</td>
</tr>
<tr>
<td>Perceived Seriousness</td>
<td>.146</td>
<td>.006</td>
</tr>
<tr>
<td>Sociodemographics</td>
<td>.274</td>
<td>.128</td>
</tr>
<tr>
<td>Cues to Action</td>
<td>.335</td>
<td>.061</td>
</tr>
<tr>
<td>Perceived Benefits</td>
<td>.381</td>
<td>.046</td>
</tr>
<tr>
<td>Perceived Barriers</td>
<td>.524</td>
<td>.143</td>
</tr>
</tbody>
</table>

Three pieces of information are useful in the interpretation of this analysis. First, $R^2$ is the amount of variance explained by the model at any point in the analysis. Second, the increment value (I) is the amount of variance explained by the sequential addition of each variable set to the model. Third, when a variable set is added and the increment is substantial, the contribution of the particular variables within the set must be examined (Rindfleisch and Bean, 1988).
The first variable set to be entered in the analysis was perceived susceptibility. The $R^2$ value of .140 indicates that 14% of variance in practice of unprotected insertive anogenital intercourse is accounted for by this set. Within the set, assessment of behavior as being less safe for the last six months was shown to be related to an increase in this high-risk practice (see Appendix D).

The next four variable sets, perceived seriousness, sociodemographics, cues to action, and perceived benefits account for 24% of the explained variance in practice of unprotected insertive anogenital contact. As level of education decreases and number of hours worked increases, this high-risk practice occurs more frequently. Less exposure to HIV transmission issues was associated with a decrease in unprotected anogenital intercourse; however, decrease in the belief that safer sex prevents HIV was associated with an increase in practice of this behavior.

Finally, the perceived barriers set accounts for 14.3% of the explained variance. Within the set, a decrease in stress associated with changing sexual practices and feeling less "turned off" by a partner's condom use were associated with decreases in respondents' practice of unprotected insertive anogenital intercourse.

2. To what extent do psychosocial and environmental variables influence the practice of unprotected receptive anogenital intercourse among participants in this study? (See Table 21.)
The $R^2$ value of .134 indicates that 13.4% of variance in practice of unprotected receptive anogenital intercourse is accounted for by the perceived susceptibility variable set.

Assessment of sexual behavior as being less safe for the last six months was shown to be related to an increase in this high-risk practice.

Approximately 17% of the explained variance in practice of unprotected receptive anogenital intercourse is accounted for by perceived seriousness, sociodemographics, cues to action, and perceived benefits sets. As the number of hours worked by a respondent increased, so did the frequency of practice of unprotected receptive anogenital intercourse.

The perceived barriers set accounts for 16.4% of the explained variance. Within the set, decreases in the enjoyment of sexual practices and stress in changing them, and feeling less "turned off" by a partner's condom use, were
associated with a decrease in the frequency of practice of this high-risk behavior. However, experiencing less difficulty in limiting the number of one's sexual partners and feeling less "turned off" by personal condom use were associated with an increase in frequency of unprotected receptive anogenital intercourse among respondents.

3. To what extent do psychosocial and environmental variables influence the use of condoms among participants in this study? (See Table 22.) {Please note that the nominal condom use variable was dummy-coded to be suitable for use in the hierarchical regression.}

Table 22

<table>
<thead>
<tr>
<th>HBM Variable Set</th>
<th>R²</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Susceptibility</td>
<td>.072</td>
<td>----</td>
</tr>
<tr>
<td>Perceived Seriousness</td>
<td>.118</td>
<td>.046</td>
</tr>
<tr>
<td>Sociodemographics</td>
<td>.175</td>
<td>.057</td>
</tr>
<tr>
<td>Cues to Action</td>
<td>.238</td>
<td>.063</td>
</tr>
<tr>
<td>Perceived Benefits</td>
<td>.385</td>
<td>.147</td>
</tr>
<tr>
<td>Perceived Barriers</td>
<td>.562</td>
<td>.177</td>
</tr>
</tbody>
</table>

The R² value of .072 indicates that 7.2% of variance in condom use is accounted for by the perceived susceptibility set. Within the set, an assessment of
increased risk for contracting HIV was related to an increase in respondents' use of this safer sex practice.

Approximately 17% of the explained variance in condom use is accounted for by perceived seriousness, sociodemographics, and cues to action sets. Participants who did not believe that HIV inevitably leads to AIDS, bisexual men, and sero-positives were less likely to use condoms.

Finally, the perceived benefits and barriers sets showed a substantial impact on the sample’s use of condoms. Individual variables in these sets accounted for 32.4% of the explained variance. A decrease in the belief that safer sex prevents HIV was related to an increase in their use. However, finding condoms to be less erotic and experiencing greater difficulty in finding partners to have safer sex were associated with decreases in their use. Feeling less "turned off" by a partner’s condom use was related to an increase in participants’ own use of them, while experiencing less difficulty in limiting the number of sexual partners was associated with a decrease in the frequency of condom use.
CHAPTER V

DISCUSSION AND CONCLUSIONS

The intent of this chapter is to discuss the conclusions of the research findings and their relevance to similar studies found in the current public health literature. Limitations of the study, its implications for the social work profession, and future research needs suggested by these results will be presented, also.

Sociodemographic Characteristics of Respondents and Results of HIV Antibody Testing

A majority of the 166 participants in this study were white homosexual males (91.6%) who had completed four years of college and made approximately $20,000 during 1989. The modal age for the sample and number of hours worked per week were 31 and 40, respectively.

Most respondents had sought HIV antibody testing (76.5%); 54.8% received seronegative results and 18.7% received seropositive results. Those who had not sought testing or received their results at the time of their participation in the study (26.5%) believed their HIV serostatus was negative.
These results mirror the epidemiological trends for sexual orientation transmission routes, age, and race/ethnicity found in the majority of HIV disease population studies. In Ohio and Kentucky, white homosexual males comprise approximately 75% and 83% of the reported AIDS cases, respectively. The mean age range for confirmed AIDS cases in each state is between 30 and 39 years ("Ohio AIDS Data," 1990; "Kentucky AIDS Quarterly Report," 1990; "HIV/AIDS Surveillance," 1990).

Respondents' Awareness of HIV Transmission Issues and Perceived Risk of HIV Infection

A clear majority of the gay/bisexual men in the study were aware of HIV transmission issues. Nearly all had been informed about them through visual or print media sources (98.8%), and most (86.1%) had discussed these issues with friends and professionals. While knowledge of HIV preventative measures and practice of safer sex was high, only slightly more than half of the participants (55.4%) felt they had not placed themselves at risk for contracting the virus. Furthermore, a significant minority (33.2%) believed they had placed themselves at risk for HIV infection despite their awareness of risk-reduction sexual practices.

These seemingly contradictory results have been found in similar studies reviewed by Stall, Coates, and Hoff (1988) and Martin (1986). They reported
that HIV risk reduction education has reached the national gay community but its impact on high-risk behavior has been variable. Martin (1986) observed differential approaches to risk reduction in gay men through their elimination of only one of the following practices: multiple sexual partners, extra-domestic sex, or unsafe sexual activities. Other investigations revealed that health education is associated with an accumulated or initial change in risk behaviors, beyond which other variables (e.g., knowledge of antibody test results, sociodemographic characteristics) must account for further incremental change (Stall, Coates, and Hoff, 1988). Following these researchers' recommendations, this study has used the Health Belief Model to highlight those circumstances under which gay/bi-sexual men decline to practice safer sex, even after they have learned that certain types of sexual expression could be dangerous to themselves or their partners' health.

**Hypothesis Testing Results**

Results of the t test for independent samples revealed no differential practice in the frequency of protected or unprotected insertive/receptive anogenital intercourse; receptive orogenital intercourse; and condom use during all sexual activities between seropositives and seronegatives. Both serostatus groups reported engaging in each of these activities less than once a month during the six month period preceding their participation in the study.
Statistically significant results of the t test were found in the frequency of insertive orogenital intercourse and body rubbing. A weak but nonstatistically significant difference was also found in the practice of mutual masturbation. In each instance seronegatives were likely to engage in the specified sexual practice more frequently than their seropositive counterparts.

The hypothesis testing results are similar to those found in companion studies in the public health literature. While unprotected insertive and receptive anogenital intercourse have not been totally eliminated by all seropositive and seronegative individuals, its frequency has generally declined. Seronegative persons, however, were likely to continue practicing orogenital and unprotected anogenital intercourse more frequently than their seropositive counterparts; and increase their use of condoms during all sexual activities (McCusker et al., 1988; Wiktor et al., 1990; Van Griensven et al., 1989; Martin, Garcia, and Beatrice, 1989).

While both groups in this study reported practicing unprotected and receptive intercourse less than once a month, it is clear that risk for HIV transmission and infection among these individuals still persists, even after their participation in antibody testing/counseling programs.

These programs encourage the use of sexual activities (e.g., mutual masturbation, body rubbing) which do not permit the exchange or direct portal entry of fluids into the circulatory system as a means of avoiding HIV infection
(Cates and Handsfield, 1988; Phair and Wolinsky, 1989). It is apparent that this message has been received by seronegatives in this study, who were likely to engage in these practices more frequently than were seropositives. Perhaps the latter group had not heard or sufficiently understood the enhancement of sexual pleasure that can occur from the use of these safer sex practices. This information must continue to be clearly stated and reinforced by antibody testing/counseling program personnel in an effort to promote positive sexual functioning, and reduce the risk of HIV transmission and reinfection among seropositive individuals (Lovejoy, Moran, and Paul, 1988).

Variables Influencing the Use of High-Risk and Safer Sex Practices

Through the data analytic technique of hierarchical regression, basic dimensions of the Health Belief Model identified and assessed the influence of psychosocial and environmental variables on the frequency of this sample’s use of two high-risk sexual practices: unprotected insertive and receptive anogenital intercourse. It was also useful in assessing the level of influence of those factors on respondents’ use or nonuse of condoms as a preventative health action against HIV infection.

Four variables, which were selected with the lowest probability ($p<.10$), were shown to be uniquely influential in the practice of unprotected receptive and insertive intercourse: (1) respondents’ assessment of their behavior as being
less safe for the last six months, and (2) an increase in the number of hours worked were associated with an increase in the frequency of this practice; while (3) a decrease in stress associated with changing sexual practices, and (4) feeling less "turned off" by a partner’s condom use were associated with decreases in respondents' practice of unprotected anogenital intercourse.

These psychosocial and environmental variables were primarily derived from the HBM's perceived susceptibility and barrier sets. It seems reasonable to conclude, therefore, that vulnerability to HIV, via the practice of unprotected insertive and receptive anogenital intercourse, is increased as respondents' sexual behavior becomes less safe, and number of hours worked increases.

Cleary and associates (1986) hypothesize that these attitudes and high-risk behaviors can persist among people who have received antibody testing and counseling due to their underlying socioenvironmental perceptions of how likely they are to develop AIDS or spread the virus. For example, gay and bisexual men living in the epicenters for HIV infection (e.g., Columbus and Cincinnati, Ohio, and Lexington, Kentucky), who have a strong intuitive sense that the virus is highly contagious and that it is necessary to distance oneself from HIV to avoid it, may believe that antibody status knowledge and safer sex practices are futile. Additionally, seropositive individuals seem to have trouble truly believing that, even though they have already been infected with HIV, they can slow down
the process of clinical disease by using safer sex practices to avoid further infection with other sexually transmitted diseases, or reinfection with HIV.

Results of the hierarchical regression of condom use revealed eight variables (each with a $p<.10$) uniquely influential in their use. (1) Respondents' assessment of increased risk for contracting HIV was related to an increase in the use of condoms. (2) Participants who lacked belief in the inevitability of HIV leading to AIDS, (3) bisexual men, and (4) seropositives were less likely to wear condoms. (5) Finding condoms to be less erotic, (6) experiencing less difficulty in limiting the number of one's sexual partners, and (7) experiencing greater difficulty in finding partners to have safer sex were associated with a decrease in their use. (8) Feeling less "turned off" by a partner's condom use was related to an increase in participants' own use of them.

Since condom use was the only health preventative behavior in this study examined by the Health Belief Model, it is particularly important to note that assessment of increased risk for contracting HIV, and feeling less "turned off" by a partner's condom use were significantly associated with $55.8\%$ of the respondents using this safer sex practice. $44.4\%$ of the sample, however, reported non-use of condoms due to a difficulty in finding partners with whom they could practice safer sex and finding condoms to be less erotic.
Implications of the Study for Social Work

It is evident from the literature reviewed for this study and the results of data analysis that changes in sexual behavior among homosexual/bisexual men have occurred because of awareness of HIV transmission issues. These changes have been most striking in San Francisco, where the virus had produced devastating effects of morbidity on the gay/bisexual population during the early years of the HIV epidemic. Longitudinal studies (Winkelstein et al., 1987; 1988) conducted between 1982 and 1987, revealed a continuous decline (90%) in the transmission behavior of unprotected anal intercourse.

Comparable trends in reduction of unprotected anal intercourse, however, have not been found in other high-prevalence AIDS areas such as New York, Chicago, and Boston, or in low-prevalence areas such as Birmingham, Tupelo, and Biloxi. Awareness of HIV transmission issues was high among gay and bisexual men in every city. (Emmons et al., 1986; Martin 1986; McCusker et al., 1988; St. Lawrence, Hood, Brasfield, and Kelly, 1989: Kelly et al., 1990).

Gay and bisexual men in this study appear to have markedly reduced but not totally ceased their use of unprotected anogenital intercourse despite their awareness of its insidious health risks. Furthermore, effects of knowledge of HIV antibody status produced no statistically significant effects on the frequency of practice of anal intercourse. Condom use in all sexual activities was reported by only a slight majority of the respondents.
Social workers involved in policy-making and direct service in the public health sector can have the greatest impact on the educational efforts of HIV testing/counseling programs to promote risk-reduction activities among its gay/bisexual participants. Results from this study should alert workers to the evidence that preferred strategies are being employed by this population to reduce the threat of HIV infection. While most seropositive and seronegative gay/bisexual men appear to be having minimal anogenital contact, their use of condoms during this activity appears inconsistent.

Control of HIV transmission requires that use of preventative health measures such as condoms be applied consistently. However, there is ample evidence from this and most investigations that behavioral risk reduction has been incremental rather than comprehensive. Although a common phenomenon with most well-publicized health-risk behaviors (e.g., cigarette smoking, seat belt use), it is potentially lethal in the case of HIV infection. This finding may argue against attempts by public health social workers to promote elimination rather than modification of high-risk sexual practices in HIV testing/counseling and educational programs. At a minimum, it would seem necessary from a policy or programmatic viewpoint, to strengthen and clarify health recommendations so that gay and bisexual men understand that behavioral risk reduction must occur for a lifetime (Becker and Joseph, 1988). From a gay psychological and political viewpoint, ongoing modifications, rather than abstinence from sexual practices
which are pleasurable and symbolic of a unique subcultural identity, would seem preferable.

Data concerning a research issue of primary importance to public health social workers has been generated by this study: assessment of the influence of relevant psychosocial and environmental factors, derived from the Health Belief Model, on the use of unprotected anogenital intercourse. This information is an essential prerequisite for the future refinement and development of successful HIV testing/counseling programs within the gay/bisexual community. Data analysis revealed that vulnerability to HIV, via the practice of unprotected insertive and receptive anogenital intercourse, is increased as respondents' sexual behavior becomes less safe, and number of hours worked increases.

Social workers in antibody testing programs must recognize these impediments to risk reduction among gay and bisexual men, and use this knowledge to change their counseling and educational approaches. New strategies, including the development of individualized risk-reduction plans which encompass the explicit discussion of ways to enhance eroticism through condom use, should be used with individuals who express displeasure with or ignorance of their efficacy in preventing exposure to HIV.

While it is a small group of seronegatives in most studies who report continuing unprotected anogenital intercourse, these individuals unwittingly place themselves at risk for exposure to HIV and probably account for the new infec-
tions which continue to appear. In conclusion, until social workers implement new educational strategies to address these impediments to behavioral change, discussion of such extreme policies as quarantine or isolation of those infected with HIV will continue (Schechter et al., 1988; Becker and Joseph, 1988).

Limitations of the Study

The major limitation of this study is the absence of random sampling, which produces results which may have limited generalizability. The individuals who participated may not be entirely representative of homosexual and bisexual men who reside outside of the epicenters for HIV disease in their respective states. As a result of this cohort's participation in HIV testing/counseling programs, support groups, gay political or community service organizations, and clinical agencies, sensitivity to HIV issues will likely be more prevalent than in the general population.

Furthermore, the decision to volunteer for a sexual behavior research project may be made for a variety of idiosyncratic reasons which may have strong effects on individuals' responses to questionnaire items.

An additional limitation of the study is that the reliability of the data collection instrument has not been statistically established, though similar ones from related studies (Cleary et al., 1988; McCusick et al., 1988) were used to assist the investigator in construction of appropriate questionnaire items.
Ironically, some of the components of limited generalizability mentioned above may also be considered strengths from a public health point of view. Because so few people receive HIV antibody testing/counseling in the U.S., and an even smaller number of this group are gay/bisexual men, little is known about the sexual practices of those high-risk groups who receive testing and education. Data from this study may provide valuable information regarding the effectiveness of this program in reducing practices which promote the transmission and disease progression of HIV in sexually active gay/bisexual men.

Implications for Future Research

The following conclusions derived from this investigation suggest several areas for future research.

1. A secondary objective of this study was to explore the sexual practices of those individuals who did not seek HIV antibody testing, but presumed their serostatus was either positive or negative. Unfortunately, a comparison between these two groups was not possible because no respondent identified himself as "presumed seropositive." It might seem reasonable to conclude that those gay/bisexual men who presumed their status was seronegative, had assessed their risk for exposure to HIV to be minimal or nonexistent and, therefore, saw no need to obtain antibody testing. In light of the
knowledge that these individuals also admitted to being aware of HIV transmission issues through exposure to visual or print media, future research seems in order to determine which health messages are being utilized by this cohort to self-determine their antibody status. The presence of unreliable or erroneous information which would increase the risk of exposure to HIV among these individuals creates a potentially serious public health problem.

2. Seropositive gay/bisexual men in this study, like their seronegative counterparts, continued to practice unprotected anogenital intercourse despite their awareness that this high-risk behavior has served as the primary transmission route for HIV infection in this community. At certain stages in the HIV disease process, these individuals are highly infectious to others. It is, therefore, imperative that seropositive gay/bisexual men continue practicing safer sex by using condoms, particularly if they are sexually active with anonymous partners. Future research should assess the programmatic aspects of HIV antibody testing/counseling programs to insure their adequacy and thoroughness in promoting clear and explicit risk reduction measures among seropositive individuals.

3. While this research used the Health Belief Model to identify and assess the influence of psychosocial and environmental variables on the use of unsafe sexual practices among homosexual/bisexual men, it did not go as far as
to reveal the specific nature of the stress involved in changing these practices nor did it uncover specific reasons for feelings of vulnerability to HIV among this cohort. Future qualitative research projects would be helpful in identifying and understanding the types of stress, and areas of vulnerability which impact resistance to behavioral risk reduction. This information would be helpful in increasing the efficacy of HIV testing/counseling programs, also.

4. Finally, most HIV behavioral research, including this study concerning the effects of knowledge of HIV antibody status on the sexual practices of gay and bisexual men, has limited its focus to those who are primarily white, college-educated, and middle-class. Reasons for this myopic approach are varied; however, the majority of investigators who receive institutional, federal, and private financial support to conduct HIV research are generally found at academic teaching hospitals and medical centers. Client populations which are accessible to these researchers are usually those gay/bisexual men who can afford to cover the cost of ongoing treatment at these facilities. The U.S. Public Health Service has found that minorities of color with HIV infection are more likely to be poorer and less mobile than their white counterparts, thereby, necessitating the use of free clinics or charity hospitals for treatment. Future research is urgently needed to identify the prevalence of risk-reduction activities among this population because the highest increases in rates
of reported AIDS cases were among African-Americans and Hispanics for 1989
REFERENCES


APPENDIX A

Ohio Department of Health
Recommendations for Clinical Management
of Individuals with HIV Infection
and for Those at Risk for HIV Infection
Ohio Department of Health Recommendations for Clinical Management of Individuals with HIV Infection and for Those at Risk for HIV Infection

Physicians need to be effective health educators and counselors to prevent the spread of AIDS. This can best be accomplished by establishing a rapport that enables frank and non-judgmental inquiry into and discussion of the patient's sexual and drug use history.

The goals of these clinical guidelines are:
1) To help the physician recognize, evaluate and counsel a person at increased risk for HIV infection.
2) Give a logical approach for HIV testing and interpretation of results.
3) Suggest management options and medical and psychosocial resources for the HIV infected individual.

I. INDICATIONS FOR TESTING

HIV testing should never be taken lightly because both positive and negative results can have a serious impact on a person's life. Keep the following questions in mind before testing for HIV.

A. Who should be tested?
1. Individuals with known high risk behavior for acquisition of HIV infection may benefit from this test.
   People at increased risk for HIV infection are:
   - Homosexual and bisexual men
   - Hemophiliacs (primarily those born before 1985)
   - I.V. drug users
   - Prostitutes, especially those who use I.V. drugs
   - Newborn children of parents with AIDS, HIV seropositivity, or at risk for HIV infection.
   - Sex partners of persons with HIV infection or at risk for HIV infection.
   - Health care workers with significant exposure (i.e. deep stick with HIV contaminated needle, cut with HIV contaminated instrument).
   - Any person with signs of unexplained immunodeficiency or with an unusual or aggressive presentation of tuberculosis.

2. Persons who are possibly at increased risk for HIV infection are:
   - Individuals who received blood transfusions between 1978-1985, especially if they received multiple units and were transfused in an area of increased prevalence of HIV (example: A leukemic who received 20 units of blood in New York City in 1984).
   Individuals not represented in the above list are at low risk for HIV infection and generally should not be tested.

B. Indications for testing
The EIA for HIV was originally designed to screen units of blood to create a safer blood supply. It has been quite effective for that purpose but also may be useful for the following reasons:
1. Diagnosis
   a) Knowledge of HIV status may help a physician evaluate a patient with signs or symptoms of HIV infection or unexplained immunodeficiency, especially in high risk populations.
   b) A positive HIV test is required for reportable diagnosis of ARC. Documentation of HIV positivity
Table #1: Abbreviations Used in the Guidelines:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV</td>
<td>human immunodeficiency virus formerly classified HTLV-III</td>
</tr>
<tr>
<td>PWA</td>
<td>person with AIDS</td>
</tr>
<tr>
<td>ARC</td>
<td>AIDS Related Complex</td>
</tr>
<tr>
<td>EIA</td>
<td>enzyme immunoassay (also called ELISA)</td>
</tr>
<tr>
<td>WB</td>
<td>Western blot</td>
</tr>
<tr>
<td>CDC</td>
<td>Centers for Disease Control</td>
</tr>
<tr>
<td>ODH</td>
<td>Ohio Department of Health</td>
</tr>
<tr>
<td>MMWR</td>
<td>Morbidity and Mortality Weekly Report</td>
</tr>
</tbody>
</table>

is also required in order for some disorders to meet the CDC AIDS case definition (ref. MMWR, August 14, 1987, Vol. 36, No. 15).

2. Prevention and education
   a) Knowledge of HIV status, whether positive or negative, may be incentive for some people to change high risk behavior and hence help decrease the possibility of transmission. (example: A sero-negative gay male may feel as though he "has a new lease on life" and be more motivated to adhere to the safer sex guidelines.)
   b) It may be useful to define the antibody status of a person who thinks he/she is at risk. There are the "worried well" who, while asymptomatic, may harbor intense anxiety about past high risk behavior and the possibility of infection. Some individuals, while not in a high risk group per se, are uncertain of the activity of their sexual partners. These persons may benefit from knowing their HIV status. In most cases they will test negative and receive peace of mind. However, the physician and patient must be prepared to deal with positive results, the disclosure of which could result in significant depression and suicidal ideation.

A Caveat Related to HIV Testing
In addition to the psychological factors of coping with seropositivity, there are also well documented cases of individuals losing employment and life insurance and suffering various forms of social stigmatization following disclosure of HIV status. Once a result is placed in a medical chart, it is no longer totally confidential, and may be released to insurance companies or employers as part of a general medical release authorized by the patient.

C. Where should the test be performed?
1. Unless strict confidentiality and appropriate pre- and post-counseling can be guaranteed, the ODH recommends the use of ODH-sponsored counseling and testing sites where testing can be done free of charge, anonymously, and where personal counseling is ensured. For information about the site nearest you, call the Ohio AIDS hotline at 1-800-332-AIDS.

2. Physicians who test from their offices should be:
   a. Knowledgeable about HIV infection, the tests, and their interpretation.
   b. Committed to quality pre- and post-test counseling, including initiating a detailed discussion of safe and unsafe sexual practices.
   c. Able to ensure strict confidentiality among laboratory, nursing and clerical staff.
   d. Able to obtain the patient's oral or written consent before testing. The patient has the right to decline without being denied health care or medical services.

3. Hemophiliacs should be tested through a hemophilia treatment center. To locate the one nearest you, call the ODH AIDS Hotline at 1-800-332-AIDS.

II. PRE-TEST COUNSELING
THE FOLLOWING SHOULD BE DISCUSSED WITH AN INDIVIDUAL PRIOR TO TESTING.
1. Explain to the individual that there is NO "test for AIDS." The test they receive will detect antibodies to HIV, which indicates exposure to and a high probability of ongoing infection with the virus.
2. Ask specifically why the patient desires to be tested. Try to elicit possible high risk behavior so that modifications may be suggested.
3. Educate the patient about the transmission of HIV through exchange of blood or semen, and begin educating him/her on safe sex practices and the danger of needle sharing.
4. Encourage the patient to plan for support from friends, family or a counselor after the results are given. Positive results can cause great emotional distress.

III. TESTS FOR HIV ANTIBODY
Two commonly used tests that detect antibody to HIV include the enzyme immunoassay (EIA) and Western blot (WB). These are sequential tests that are extremely sensitive and specific for the determination of HIV infection.
A. The Enzyme Immunoassay (EIA)
1. Test used to screen blood supply and increasingly as the initial screening test to diagnose HIV infection.
IV. TEST RESULT INTERPRETATION

A. Interpret HIV test results, first establish the patient's risk behaviors.
1. The specific HIV antigens are separated by electrophoresis and transferred (blotted) onto nitrocellulose paper.
2. Strips of HIV antigen-impregnated paper are incubated with a patient's serum.
3. Specific banding patterns on the paper indicate HIV Ab-Ag reaction, thus indicating HIV antibody positivity.
4. This test is more specific than EIA but usually less sensitive and more costly. The quality of this test also depends on the laboratory that performs it. Therefore, EIA is the best initial screening test available with WB better for confirmatory testing.

B. Western Blot Test (WB)
1. A test used in conjunction with the EIA, most often as a confirmation test.
2. More expensive and more labor intensive.
   1. Uses fixed HIV antigen — which is bound by HIV antibody in patient serum to form antibody-antigen complexes.
   2. The amount of reaction can then be indirectly quantified relative to positive or negative control sera with a spectrophotometer.
   3. This test is 99+% sensitive and 99% specific. The predictive value of a positive result depends on risk status. (i.e. A reactive test in a gay man from New York City has a far greater positive predictive value than a reactive test in a middle-aged white female in Kansas with no risk factors.)

Counseling of Individuals with a Negative Test Sequence

V. COUNSELING OF INDIVIDUALS WITH A NEGATIVE TEST SEQUENCE

A. In low risk individuals: Reassure them that there is NO evidence of HIV infection. Educate them on the modes of transmission, stressing that the true prevalence of HIV in the heterosexual population is not known. Unprotected sexual experiences, even among heterosexuals may be dangerous especially if the person is at high risk. They should abstain from sex or follow safe sex guidelines, using condoms for all anal-genital, or oral-genital contact. IV drug users should be instructed to NEVER share needles and encouraged to undergo drug rehabilitation.

B. In high risk individuals: Counsel the individual about changing high risk behaviors. This may be the best opportunity a physician has in helping to prevent AIDS. Gay and bisexual males should be informed that it is totally erroneous for them to believe that they are "immune" or know how to pick "safe partners." They should abstain from sex or follow safe sex guidelines, using condoms for all anal-genital, or oral-genital contact. IV drug users should be instructed to NEVER share needles and encouraged to undergo drug rehabilitation.

B. Western Blot Test could also be run here for confirmatory value.

C. EIA test result interpretation for low risk individuals:
1. Negative — the patient is not infected.
2. Positive or indeterminate — The patient's risk status should be reassessed. If the EIA is positive or indeterminate and he/she has no unexplained illness, he/she can be considered to be non-infected.
3. WB test could also be run here for confirmatory value.

D. EIA test result interpretation for low risk individuals:
1. Negative — the patient is not infected.
2. Positive or indeterminate — The patient's risk status should be reassessed. If the EIA is positive or indeterminate, he/she may want to retest after 3-6 months as seroconversion may be ongoing.
3. WB test could also be run here for confirmatory value.

VI. COUNSELING AND INITIAL MANAGEMENT OF PATIENTS WITH POSITIVE WB TESTS

A. Counseling
1. Encourage a full medical assessment.
2. Encourage the patient to inform all past and present sexual or needle-sharing contacts so that these people may seek counseling and testing.
3. Educate about transmission of the virus.
   a. Even though the individual is asymptomatic he/she can still transmit the virus.
   b. Casual contact at school, work or home does not transmit the virus.
   c. Exchange of blood or semen most easily transmits the virus so the patient should not donate blood, plasma, semen or body organs. He should not share needles, razors, toothbrushes, or any other instrument that could transmit blood. The person should abstain from sex or adhere to strict safe sex practices (only after informing potential part-
A complete physical exam should include the following:

- Recommended lab tests for all individuals infected with HIV:
  1. CBC with differential and platelets.
  2. Syphilis serology.
  3. Pregnancy test if appropriate.
  4. Hepatitis B surface antigen and Hepatitis core antibody.
  5. Liver function profile (Alkaline phosphatase, SGOT, SGPT, Bilirubin, albumin).
  6. Tuberculin skin test with controls to test for anergy. A significant number of persons with HIV infection will be anergic.
  7. ABG's and chest X-ray, if any respiratory symptoms are present. The chest X-ray would be helpful if pneumonia or TB is suspected.
  8. Further evaluation of any symptom may be necessary to rule out other disease processes.

B. A complete history should be done focusing on the following symptoms:

- persistent fever, night sweats, weight loss, memory loss, sensory or motor loss, personality changes, non-productive cough, dyspnea, dysphagia, persistent diarrhea, fatigue or rash.

C. A complete physical exam should include the following:

1. The oral cavity should be examined for ulcers, hairy leukoplakia, violaceous macules or papules, and candidiasis.
2. The fundi should be examined for retinal exudates with distinct borders, spreading in a centrifugal manner which may indicate CMV retinitis.
3. Examination of all lymph nodes, liver and spleen should be performed.
4. A total body skin exam for Kaposi's sarcoma, which could appear as red or violaceous macules or papules. Suspicious lesions should be biopsied.
5. A complete neurological examination looking for overt or subtle signs of ataxia, weakness, or other deficit. A mental status evaluation should be done.
6. Genital or pelvic exam and consider culturing for GC and chlamydia.
7. Anal-rectal exam for proctitis, perianal lesions or warts, and other sexually transmitted diseases such as gonorrhea or herpes simplex. Cultures should be considered.

D. Recommended lab tests for all individuals infected with HIV:

1. CBC with differential and platelets.
2. Syphilis serology.
3. Pregnancy test if appropriate.
4. Hepatitis B surface antigen and Hepatitis core antibody.
5. Liver function profile (Alkaline phosphatase, SGOT, SGPT, Bilirubin, albumin).
6. Tuberculin skin test with controls to test for anergy. A significant number of persons with HIV infection will be anergic.

VII. CLINICAL MANAGEMENT OF A PERSON WITH HIV INFECTION:

The natural history of HIV infection is variable. Many people remain asymptomatic for years, while others develop symptoms sooner. The course may be dependent on some "unknown cofactors." However, data from a seven-year prospective study on gay and bisexual men in San Francisco suggest an estimate that approximately 31%-35% of those infected will develop AIDS after seven years. Almost half of those studied had at least some generalized symptoms by six years.

The information gained from history, physical and labs will divide seropositive persons into two groups:

A. Those who are HIV positive without signs and symptoms.

In addition to close follow-up counseling and referral to support groups the physician can maximize infection prevention by practices such as:

1. Review of vaccination status of routine childhood immunizations and update as appropriate (avoid live virus vaccines such as measles, mumps, rubella and polio).
2. Administration of pneumococcal vaccine and the annual influenza vaccine.
3. Administration of Hepatitis B vaccine if the patient has not had previous or ongoing infection.
4. If a tuberculin skin test is positive, a thorough evaluation for active TB should be undertaken, and isoniazid prophylaxis should begin. The recent sharp increase in TB cases in New York City is probably related to HIV infection. HIV is theorized to help in reactivation of latent TB infections. TB/AIDS cases are especially prevalent in IV drug users and foreign-born HIV-infected individuals. Persons with AIDS and TB are more likely to present with an unusual and aggressive form of TB with increased involvement of extrapulmonary sites. Patients may present with infiltrates in any lung zone, which are often associated with hilar adenopathy. They also exhibit increased side effects and resistance to the usual drug therapy for Tuberculosis.

B. HIV positive with symptoms or signs.

There are many complications of HIV infection, some of which are caused by the virus directly and others which are secondary to the resulting immunodeficiency and opportunistic infections. These patients may require extensive medical evaluation. Some will fall into the diagnostic category of AIDS or ARC (both of which are reportable in Ohio). Others may be symptomatic without
APPENDIX B

Questionnaire and Cover Letter
Spring, 1990

Hello,

I'm completing my doctoral degree in social work at The Ohio State University. I am asking you to take some of your valuable time to complete the attached questionnaire. By doing so you will provide me with important information about my research topic: accurately describing the sexual/lifestyles practices of gay and bisexual males in response to the current AIDS epidemic.

The anonymous information you provide will serve as the basis for my dissertation report. In addition, I plan to write articles for professional journals, gay/bisexual/lesbian newspapers, and give presentations concerning my findings -- all in an effort to inform individuals about how they can better protect themselves from transmitting or contracting the HIV virus. My ability to carry out these activities is directly related to your willingness to complete and return the questionnaire in an honest and timely fashion -- a preaddressed and prestamped envelope is attached for your convenience.

If you have questions concerning this research project, and believe it would be helpful to speak with me directly, please contact me at (614) 292-6288, or write to me in c/o OSU College of Social Work, 1947 College Road, Columbus, Ohio, 43210.

Please accept my appreciation in advance for your time, patience, and thoughtful effort in completing this questionnaire.

Sincerely,

D. Michael Graham

OSU HSR #90B0046 3/90
SEXUAL PRACTICES QUESTIONNAIRE

ID Number _____ _____ _____

Date you completed this questionnaire: Mo _____ Day _____ Yr _____

This is a self-administered questionnaire covering many aspects of your sexual practices and lifestyle during the previous 6 months. It should take about 20 minutes to complete. The information you provide by filling out this questionnaire will assist the investigator in his doctoral dissertation research.

Though many questions ask about potentially sensitive areas of your life, the information gathered through this questionnaire will be kept strictly confidential; NO information will be released or published that would allow any individual to be identified.

When answering each question, please select or provide a response that comes closest to your own opinion or personal experience. Please be completely honest when filling out this questionnaire.

When you have completed the questionnaire, PLEASE RETURN IT IN THE ATTACHED PREADDRESS AND PRESTAMPED ENVELOPE.

THANK YOU FOR YOUR TIME AND PATIENCE IN COMPLETING THIS QUESTIONNAIRE!
SEXUAL PRACTICES QUESTIONNAIRE

A. 1. What is your age? ______
   2. What is your sex? ______
   3. What is your sexual orientation? homosexual male _____
      bisexual male _____

   IF YOU DO NOT CONSIDER YOURSELF TO BE A HOMOSEXUAL OR BISEXUAL MALE
   PLEASE DO NOT COMPLETE THIS QUESTIONNAIRE. THANK YOU!

   4. Do you consider yourself to be an:
      Afro-American, non-Hispanic _____
      White, non-Hispanic _____
      American Indian or Alaskan Native _____
      Hispanic _____
      Asian or Pacific Islander _____

   5. What is the highest grade you have completed? ______

   6. Are you currently employed at one or more jobs for pay? ______

   7. In an average week about how many hours do you work on your
      job(s)? ______ hours

   8. In 1989, about how much income did you earn? $ ______

   B. 9. Have you taken the HIV (AIDS) antibody (blood) test? yes _____ no _____

   10. If yes, when? (month and year) __________________________

   11. If you have received your results, were they: positive _____ or
       negative _____? I have not received my antibody test results yet _____.

   12. If you have not taken the HIV antibody test or received your results
       yet, do you believe your antibody status is: positive _____ or
       negative ____. 
Indicate whether you agree or disagree with the following statements concerning your personal behavior by circling the number that best represents your response:

<table>
<thead>
<tr>
<th>strongly agree</th>
<th>agree</th>
<th>neither agree</th>
<th>disagree</th>
<th>strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

13. I have practiced safer sex for the last year.

1   2   3   4   5

14. I have read pamphlets/articles or heard/seen advertisements concerning HIV transmission.

1   2   3   4   5

15. I have talked with friends, professionals, and/or attended educational/support meetings about HIV issues.

1   2   3   4   5

16. On the basis of my participation in the above activities I have circled, I do not believe I have placed myself at risk for contracting the HIV virus.

1   2   3   4   5

17. I have a "gut feeling" that I have not placed myself at risk for contracting the HIV virus.

1   2   3   4   5

THE REMAINDER OF THE QUESTIONS ARE ABOUT YOUR LIFESTYLE AND SEXUAL EXPERIENCES AND PRACTICES DURING THE LAST 6 MONTHS. THERE ARE NO RIGHT OR WRONG ANSWERS. PLEASE GIVE YOUR HONEST RESPONSES.

C. 18. How many different female sexual contacts have you had during this 6 month period? (circle one response)

none 1-5 6-10 11-15 16-20 21-25 more than 25

19. How many different male sexual contacts have you had during this 6 month period? (circle one response)

none 1-5 6-10 11-15 16-20 21-25 more than 25
20. If you have had only one contact, has this been with a male _____ or female _____.

21. Has this been a mutually monogamous relationship?
   yes _____ no _____ don't know _____

IF YOU ANSWERED NO TO THIS QUESTION, PLEASE GO TO QUESTION #24.

22. If you answered yes to this last question, for how long have you been in this mutually monogamous relationship? (check one response)
   6 months or less _____
   1 year _____
   2 or more years _____

23. Taking all things together, how happy would you say this relationship is?
   Very happy _____
   Pretty happy _____
   Not too happy _____
   Not at all happy _____

24. Among your male sexual contacts during that last 6 months, how many were steady (i.e., those you had sexual relations with 3 or more times during the 6 months)? (circle one response)
   none 1-5 6-10 11-15 16-20 21-25 more than 25

25. Among your male sexual contacts during the last 6 months, how many were non-steady or casual (i.e., those you had sexual relations with only once or twice during the 6 months)? (circle one response)
   none 1-5 6-10 11-15 16-20 21-25 more than 25

26. Considering all of your male sexual partners during the past 6 months, how often (on average) have you had sexual contact? (check one response)
   none _____ IF NONE, PLEASE GO TO QUESTION #59.
   less than once a month _____
   1-3 times per month _____
   1-3 times per week _____
   4-6 times per week _____
   7 or more times per week _____
D. In the past 6 months, how frequently have you engaged in the following activities with a male sexual partner? (check one response per activity)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>less than once a month</th>
<th>1-3 times /month</th>
<th>1-3 times /week</th>
<th>4 or more times /week</th>
</tr>
</thead>
<tbody>
<tr>
<td>27. Insertive Orogenital: your penis in his mouth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. Receptive Orogenital: his penis in your mouth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. Insertive Anogenital: your penis in his anus without a condom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. Insertive Anogenital: your penis in his anus with a condom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31. Receptive Anogenital: his penis in your anus with a condom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32. Receptive Anogenital: his penis in your anus without a condom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33. Insertive Oroanal: your tongue on or in his anus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. Receptive Oroanal: his tongue on or in your anus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35. Insertive Fisting: your hand or fist in his anus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36. Receptive Fisting: his hand or fist in your anus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37. Deep Kissing: saliva exchanged</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38. Mutual Masturbation: manipulation of genitals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39. Body Rubbing: Caressing in a sexual/erotic way</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
During the sexual activities just described on the previous page, you may or may not have come into contact with your sexual partner's ejaculate (cum), for example if your partner used a condom or withdrew before ejaculating. How often would you say you came into contact with your sexual partner's ejaculate in or on the following parts of your body? (check one response for each question)

<table>
<thead>
<tr>
<th>Part of Body</th>
<th>Never</th>
<th>1-3 times</th>
<th>4 or more times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inside your mouth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inside your rectum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anywhere else on your skin</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

E. 43. Have you wore condoms during sexual activity during the last 6 months?  
yes _____  no _____

IF YOU CHECKED NO, PLEASE GO TO QUESTION #48.

For each activity you engaged in during the last 6 months, please check the space which most accurately reflects YOUR CONDOM USE. If you did not engage in a particular activity, please check NA — not applicable.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequency of Your Condom Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>44. Insertive Orogenital: your penis in his mouth</td>
<td>Never</td>
</tr>
<tr>
<td>45. Insertive Anogenital: your penis in his anus</td>
<td>Never</td>
</tr>
<tr>
<td>46. Body Rubbing: Caressing in a sexual/erotic way</td>
<td>Never</td>
</tr>
<tr>
<td>47. Mutual Masturbation: manipulation of genitals</td>
<td>Never</td>
</tr>
</tbody>
</table>

F. 48. Have you had sexual contact during the last 6 months with a male partner who wore a condom?  
yes _____  no _____
IF YOU CHECKED NO, PLEASE GO TO QUESTION #53.

For each activity you engaged in during the last 6 months, please check the space which most accurately reflects your partner's condom use. If you did not engage in the activity, please check NA -- not applicable.

### Frequency of His Condom Use

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Sometimes</th>
<th>Always</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>49. Receptive Orogenital: his penis in your mouth</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>50. Receptive Anogenital: his penis in your anus</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>51. Body Rubbing: Caressing in a sexual/erotic way</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>52. Mutual Masturbation: manipulation of genitals</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
</tr>
</tbody>
</table>

6. 53. In the last 6 months, have you ever used a spermicide during sexual activities? (Include condoms with spermicide)
   Yes _____ No _____

54. If yes, please specify during which activities and how often:

-----------------------------------------------

55. During the last 6 months, did you ever have contact with your partner's blood during any sexual activities?
   Yes _____ No _____

56. If yes, please specify during which activities and how often:

-----------------------------------------------

57. During the last 6 months, did you ever have contact with your partner's blood during other (non-sexual) activities?
   Yes _____ No _____

58. If yes, please specify which activities and how often:

-----------------------------------------------
H. The following statements are attitudes and beliefs which some people have. Indicate whether you agree or disagree with each statement by circling the number that best represents your response:

<table>
<thead>
<tr>
<th>strongly agree</th>
<th>agree</th>
<th>neither agree nor disagree</th>
<th>disagree</th>
<th>strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

59. Practicing safer sex will prevent me from contracting the HIV virus.

1. 2 3 4 5

60. Making changes in my sexual behavior is very stressful for me.

1. 2 3 4 5

61. My friends encourage me to change my sexual practices.

1. 2 3 4 5

62. I have no control over my sexual impulses.

1. 2 3 4 5

63. I feel almost certain that I will contract the HIV virus.

1. 2 3 4 5

64. I feel that using condoms during sexual activity can be very erotic.

1. 2 3 4 5

65. It is easy for me to incorporate safer sex practices into my lifestyle.

1. 2 3 4 5

66. HIV infection is one of the most frightening diseases I know.

1. 2 3 4 5

67. Knowing your HIV antibody test results reduces your anxiety about contracting the HIV virus.

1. 2 3 4 5

68. I enjoy my sexual practices too much to change them.

1. 2 3 4 5

69. In the "heat of passion" it is difficult to pay attention to safer sex.

1. 2 3 4 5
| 70. An HIV antibody negative person who always uses condoms is not going to become HIV infected from sexual activity. |
|---|---|---|---|---|
| strongly agree | agree | neither agree | nor disagree | disagree |
| 1 | 2 | 3 | 4 | 5 |

| 71. I am "turned off" when my partner (s) use (s) condoms. |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

| 72. My present behavior will protect me from contracting the HIV virus. |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

| 73. Limiting the number of sexual partners I have is difficult for me. |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

| 74. It is important to know one's HIV antibody status in order to prevent transmitting the HIV virus to others. |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

| 75. Using condoms is an excellent way of avoiding HIV infection. |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

| 76. I am trying to change my sexual behavior to protect myself from contracting the HIV virus. |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

| 77. My using condoms would be a sexual "turn off" for me. |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

| 78. It is getting easier for me to find sexual contacts who will practice safer sex. |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

| 79. People who are HIV antibody positive can still reduce their risks of developing AIDS. |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

| 80. HIV infection inevitably leads to AIDS. |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
81. Considering all your sexual behavior during the last 6 months, how safe do you consider your sexual practices? Circle a number on the scale below from very safe to not safe at all.

<table>
<thead>
<tr>
<th>Very Safe</th>
<th>Moderately Safe</th>
<th>Not Safe At All</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

THANK YOU AGAIN FOR YOUR TIME AND EFFORT IN COMPLETING THIS QUESTIONNAIRE. DON'T FORGET TO RETURN IT IN THE ATTACHED PREADDRESS AND PRESTAMPED ENVELOPE.
APPENDIX C

OSU Human Subjects Review Committee
Action Form
Research Involving Human Subjects

ACTION OF THE REVIEW COMMITTEE

With regard to the employment of human subjects in the proposed research protocol:

90B0046 SEXUAL PRACTICES QUESTIONNAIRE (AN INVESTIGATION OF THE EFFECTS OF HIV ANTIBODY STATUS ON HIGH-RISK SEXUAL BEHAVIORS AND SAFER SEX PRACTICES IN A COHORT OF HOMOSEXUAL/BISEXUAL MEN), Nolan Rindfleisch, D. Michael Graham, Social Work

THE BEHAVIORAL AND SOCIAL SCIENCES REVIEW COMMITTEE HAS TAKEN THE FOLLOWING ACTION:

X APPROVED   DISAPPROVED

___ APPROVED WITH CONDITIONS*   X WAIVER OF WRITTEN CONSENT GRANTED

* Conditions stated by the Committee have been met by the Investigator and, therefore, the protocol is APPROVED.

It is the responsibility of the principal investigator to retain a copy of each signed consent form for at least four (4) years beyond the termination of the subject's participation in the proposed activity. Should the principal investigator leave the University, signed consent forms are to be transferred to the Human Subjects Review Committee for the required retention period. This application has been approved for the period of one year. You are reminded that you must promptly report any problems to the Review Committee, and that no procedural changes may be made without prior review and approval. You are also reminded that the identity of the research participants must be kept confidential.

Date: March 2, 1990

Signed: [Signature]

(Chairperson)
APPENDIX D

Parameter Estimates and Probabilities for Health Belief Model
Independent Variable Measures
Table 23

HIERARCHICAL REGRESSION OF UNPROTECTED INSERTIVE ANOGENITAL INTERCOURSE: PARAMETER ESTIMATES AND PROBABILITIES FOR HBM INDEPENDENT VARIABLE MEASURES

<table>
<thead>
<tr>
<th>VARIABLE SET &amp; LABEL</th>
<th>PARAMETER EST.</th>
<th>PROB.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceived Susceptibility</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment of Behavior as</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being Safer for Last 6 Mos.</td>
<td>0.3352</td>
<td>0.02</td>
</tr>
<tr>
<td><strong>Perceived Seriousness</strong></td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>Sociodemographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highest Grade Completed</td>
<td>-0.1255</td>
<td>0.01</td>
</tr>
<tr>
<td>Number of Hours Worked</td>
<td>0.0253</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Cues to Action</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure to Visual/Print</td>
<td>-0.4712</td>
<td>0.09</td>
</tr>
<tr>
<td>Media About HIV Transmission</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Perceived Benefits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safer Sex Prevents HIV</td>
<td>0.2366</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Perceived Barriers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changing Sexual Practices is</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stressful</td>
<td>-0.2823</td>
<td>0.01</td>
</tr>
<tr>
<td>&quot;Turned Off&quot; by Partner's</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condom Use</td>
<td>-0.4054</td>
<td>0.06</td>
</tr>
</tbody>
</table>
Table 24

HIERARCHICAL REGRESSION OF UNPROTECTED RECEPTIVE ANOGENITAL INTERCOURSE: PARAMETER ESTIMATES AND PROBABILITIES FOR HBM INDEPENDENT VARIABLE MEASURES

<table>
<thead>
<tr>
<th>VARIABLE SET &amp; LABEL</th>
<th>PARAMETER EST.</th>
<th>PROB.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceived Susceptibility</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment of Behavior as</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being Safer for Last 6 Mos.</td>
<td>0.3280</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Perceived Seriousness</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>Sociodemographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Hours Worked</td>
<td>0.0159</td>
<td>0.01</td>
</tr>
<tr>
<td><strong>Cues to Action</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>Perceived Benefits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>Perceived Barriers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changing Sexual Practices is Stressful</td>
<td>-0.1712</td>
<td>0.04</td>
</tr>
<tr>
<td>Enjoy Sexual Practices Too Much</td>
<td>-0.2204</td>
<td>0.01</td>
</tr>
<tr>
<td>To Change Them</td>
<td>-0.2821</td>
<td>0.07</td>
</tr>
<tr>
<td>&quot;Turned Off&quot; by Partner's Condom Use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limiting Number of Sexual Partners is Difficult</td>
<td>0.2103</td>
<td>0.01</td>
</tr>
<tr>
<td>Using Condoms is a Sexual &quot;Turn Off&quot; for Me</td>
<td>0.2509</td>
<td>0.06</td>
</tr>
</tbody>
</table>
Table 25

HIERARCHICAL REGRESSIONS OF CONDOM USE: PARAMETER ESTIMATES AND PROBABILITIES FOR HBM INDEPENDENT VARIABLE MEASURES

<table>
<thead>
<tr>
<th>VARIABLE SET &amp; LABEL</th>
<th>PARAMETER EST.</th>
<th>PROB.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Susceptibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Risk Assessment for Contracting HIV</td>
<td>-0.1320</td>
<td>0.08</td>
</tr>
<tr>
<td>Perceived Seriousness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV Inevitably Leads to AIDS</td>
<td>0.0894</td>
<td>0.06</td>
</tr>
<tr>
<td>Sociodemographics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual Orientation</td>
<td>0.6516</td>
<td>0.09</td>
</tr>
<tr>
<td>Cues to Action</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of HIV Antibody Status</td>
<td>-0.7044</td>
<td>0.01</td>
</tr>
<tr>
<td>Perceived Benefits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safer Sex Prevents HIV</td>
<td>-0.1351</td>
<td>0.01</td>
</tr>
<tr>
<td>Using Condoms is Erotic</td>
<td>0.1473</td>
<td>0.00</td>
</tr>
<tr>
<td>Easier to Have Safer Sex</td>
<td>0.1800</td>
<td>0.00</td>
</tr>
<tr>
<td>Perceived Barriers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Turned Off&quot; by Partner's Condom Use</td>
<td>-0.1889</td>
<td>0.04</td>
</tr>
<tr>
<td>Limiting Number of Sexual Partners is Difficult</td>
<td>0.0784</td>
<td>0.09</td>
</tr>
</tbody>
</table>