A COMPARISON OF KNOWLEDGE AND ATTITUDES BETWEEN DIRECTORS OF ATHLETICS AND HEAD TRAINERS IN THE SOUTHWEST AND SOUTHLAND CONFERENCES REGARDING HIV-TRANSMISSION ISSUES IN ATHLETICS

DISSERTATION

Presented to the Graduate Council of the University of North Texas in Partial Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

By

Harold L. Whiteley, B.S., M.S.
Denton, Texas
December, 1995
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The purpose of this study was to investigate and compare knowledge and attitudes of directors of athletics and head trainers in the Southwest (Division 1A) and the Southland (Division 1AA) Conferences concerning HIV/AIDS issues related to transmission, prevention, and protection within college athletics programs. The results of this qualitative study provided descriptive data from university administrators within the athletics setting who are responsible for providing adequate student athlete health care services from developed and implemented administrative policies that directly or indirectly affect a student athlete’s physiological and psychological well-being.

Overall, N = 28 represents 82.4% (28 of 34) of accessible participants from the target population within the SWC and SLC. A three-section survey instrument, containing 258 items was used, yielding the following reliability measures: knowledge, r = .83; attitudes, r = .82. The survey collected 7,224 responses during the 1994 fall semester compiling demographic, knowledge, and attitudinal data for qualitative analysis, resulting in demographic and attitudinal profiles for directors and trainers. The attitudinal data collection used a Likert-type format concerning 12 broad-based areas related to HIV transmission, prevention, and protection issues within college athletics.

Head trainers had a significantly higher knowledge mean score when compared to the directors at the .05 level regarding the ANOVA, utilizing the Tukey/Kramer method incorporating the Q distribution for small and unequal
group sizes. Directors showed a moderate-to-low knowledge level concerning HIV/AIDS issues compared to the head trainers, who had a moderate-to-high knowledge level.

Homogeneity existed between the two groups concerning demographic and attitudinal profile characteristics. However, dissimilar demographics included areas regarding certification status, continuing education activities, community and campus use of resources, and perceived workplace compliance differences. Observed attitudinal differences concerned protection of confidentiality and the perceived severity of HIV/AIDS as a public health dilemma among various subpopulations within the higher education community.
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CHAPTER I

INTRODUCTION TO THE STUDY

A Serious Medical Crisis of the 1990s

The Human Immunodeficiency Virus (HIV) epidemic is a public health awareness, prevention, and protection problem. Its impact goes well beyond jurisdictional, ethical, moral, and legal barriers. There are no medical cures for HIV and Acquired Immunodeficiency Syndrome (AIDS), with none expected in the foreseeable future. HIV impacts people regardless of their attained educational levels, social, and economic status regardless of their specific race, sex, age, and creed. HIV kills with total indifference and effectiveness among individuals who participate in specific HIV risk behaviors.

New AIDS cases due to heterosexual transmission have increased over 100% for males and females from 1989 through 1992 (Novello, Surgeon General 1993). A 1993 CDC study showed HIV infections declining among gay men but rising sharply among blacks, teens, and women. The HIV and AIDS health crisis in the United States “is of immense significance . . . and will remain so beyond this millennium” (Vermund, 1993, p. 2817). Adolescents and young adults’ HIV transmission guarantees the continuation of the HIV/AIDS epidemic for future generations (American Medical Association [AMA], 1993).

Jonsen of the National Research Council (1993), warns that the HIV epidemic is shifting into various minority populations, such as racially and sexually oriented, IV-drug-related, women and respective age groupings that are
less politically potent than the gay community. Speaking as Chairman for the National Research Council, Jonsen stated:

The disease will become endemic in a way that will allow us in the dominant society not to notice it. We will not turn our eyes to it, because we don’t really care about those communities, and that means AIDS now enters the list of other social injustices that we tolerate in society (McCarthy, 1993, page 430).

AIDS is considered to be the ultimate communicable disease crisis of the 1990s and into the 21st century (Brown and Pruett, 1990). AIDS has killed over 6 million people worldwide, with nearly 20 million people HIV-infected and the numbers increasing daily at a rate of 5,000 to 10,000 new cases (AMA, 1994). The median time to develop AIDS in HIV-1-infected people is from 7 to 10 years. However, it is still not clear what proportion of those infected will eventually develop severe HIV-1 disease (Cooper, Tindall, & Swanson, 1990).

Education is the only known effective prevention and protection health tool to effectively and efficiently combat HIV transmission and AIDS-related illnesses today. Now in the epidemic’s second decade of existence HIV and AIDS remain as sports health care related issues, and will continue to impact the higher education sector for the foreseeable future.

Leadership Within Intercollegiate Athletics Health Care

Intercollegiate athletics administrators and athletic trainers make daily policy and health care service decisions that affect all student athletes. This has a long-range impact on student athletes and sport programs support staff that should be carefully considered. Critical decisions about athlete health care services in higher education should be made with an interactively comprehensive understanding regarding HIV transmission prevention and protection objectives.
One example of a complex HIV-related issue concerns a debate whether to exclude HIV-infected athletes from competition in contact sports. In 1995 the legality of excluding HIV-positive athletes from sports competition is uncertain. The Americans With Disabilities Act of 1990 and the Rehabilitation Act of 1973 prohibit unjustified discrimination against HIV-infected individuals or those with any other disabling condition. Federal laws prohibit excluding an HIV-positive athlete from a sport without a medically sound basis. Such a basis could be the risk of infecting other participants or that competition could be medically harmful to the infected athlete's well-being (Mitten, 1994).

In 1987 the United States Supreme Court ruled that excluding a person with a contagious disease from an activity without supporting medical justification violates federal laws. The court held that exclusion from an activity must be based on objective medical evidence considering the nature, duration, and severity of the risk of infection of others, the likelihood of potential harm to others and self, and the chance that reasonable accommodations will reduce any risk. Based on this ruling, an HIV-positive athlete could be excluded from a sport if he/she presented a significant risk of infecting others with HIV (Mitten, 1994).

To facilitate a better understanding of student athletes' health care risk factors associated with HIV transmission within intercollegiate athletics training programs and competitive events, it is important to assess athletics directors' and athletic trainers' range of knowledge and attitudes related to HIV transmission, prevention, and protection. Athletics directors, as administrators, and athletic trainers, as health care practitioners, should be studied concerning specific elements of HIV transmission, prevention, and protection issues in intercollegiate athletics deemed important by these two groups.

It is beneficial for a study to demonstrate the results of a group profile of inservice program criteria for targeting effective HIV prevention health care
education and service objectives within Divisions 1A and 1AA athletic conferences in Texas. The profiles concerning important athletics health care service objectives can provide a needed description of characteristics from specific groups in Divisions 1A and 1AA intercollegiate athletics departments. This information could be used for future consideration in general athletics administration health care decision-making processes directly related to the reduction of HIV transmission and the enhanced well-being of college athletes and athletics department personnel.

This study can identify the existence of developed and currently implemented HIV/AIDS prevention and protection athlete health care service policies within the athletics setting of the Southwest Conference (Division 1A) and the Southland Conference (Division 1AA) intercollegiate athletics departments. Similarities and differences are identified between HIV/AIDS prevention and protection policies and health care plans. These range from the highly developed and mandated administrative directives to directives that are more loosely developed and constitute recommendations and/or guidelines for effective health care services within the institutions' athletics settings.

Bill Walton (1994), as a national sports broadcaster and a championship ex-athlete in amateur and professional basketball, feels the following:

The HIV and AIDS epidemic is one of the most pressing issues in sports and yet there is very little talk about it . . . there is no sense of urgency regarding its dangers. That situation will soon change, simply because the virus is non-discriminatory. It only makes sense that those players who have the HIV virus should not be allowed to participate in events where the spillage of blood is common. (p. 201) Currently, there is little research in the area of intercollegiate athletics in higher education that directly relates to enhanced prevention and protection awareness
education surrounding the issue of HIV infection in sports. This type of information is needed for athletics administrators and sports management leaders who have limited sports medicine knowledge and practical experience regarding the hands-on delivery of direct student athletes' health care services. They are responsible for administrative decisions that directly affect athletes and athletics staff members within their respective areas of expertise.

Rationale for HIV Transmission Prevention Inservice Education

Education is a substantiated factor in the effective prevention and protection of disease and infection around the world. Health awareness programs developed in higher education through comprehensive research activities can be an effective vehicle for enhancing the learning process regarding attitudes, improved personal health choices, and inservice education program decisions that significantly impact the students' and campus personnels' psychological and physiological well-being.

An example of a sports wellness issue for future study within intercollegiate athletics could be to prioritize the criteria for an intercollegiate athletics health care prevention and protection inservice education endorsement model that is specifically designed to enhance the staffs' and athletes' HIV, AIDS, and STD awareness and other related athletics health care objectives in higher education. The first step regarding this effort is to study the general and specific knowledge, along with attitudes, of head athletics directors and head athletic trainers concerning HIV and AIDS, its transmission, prevention, and protection issues within the college athletics setting. Such a focus in higher education could save lives through the realization of a strategically prioritized intercollegiate athletics health care awareness agenda.

How many of our local campus communities' productive young adults are HIV infected and/or participating in specific high-risk behaviors that increases the transmission rate of HIV and STDs? How many young people are completely
unaware of their personal health status related to HIV infection and its transmission? How many HIV-positive cases, such as Magic Johnson and Arthur Ashe, must be confirmed before we begin to adequately address the issue concerning HIV infections among college students? How many college-age students must become statistically confirmed HIV and AIDS cases before higher education and public health program approaches are successful in changing young peoples’ attitudes and behaviors directly related to reduced HIV, AIDS, and STD infections within all campus communities?

It is hoped that the challenge can be met through innovative approaches utilizing criteria for enhanced health care prevention and protection awareness models, developed and implemented as a result of focused research in higher education. Intercollegiate athletics is one example of an area for focused research in higher education related to increased prevention and protection of HIV transmission among students.

A special report by the American College Health Association (ACHA, 1989) called for the provision of adequate HIV education awareness within intercollegiate athletics. It is recognized that many college student athletes engage in personal risk behaviors that increase the chances for becoming HIV-positive. The ACHA feels that it is every higher education institution’s ethical, moral, and legal responsibility to make sure all students receive adequate information regarding high-risk behaviors and the most effective prevention strategies currently available for implementation.

To be effective, intercollegiate athletics health care awareness and prevention programs should deal with HIV-related issues directly, providing updated information regarding high-risk sexual and drug use behaviors and accompanying personal risk-reduction information. Athletics directors, athletic trainers, and other sports management staff personnel can serve as respected
sources of HIV-related information that is of personal concern to every student athlete’s well-being. The reinforcement of positive changes in college athletes’ personal health choices through improved knowledge, attitude, and behavior modifications can be greatly enhanced when head athletics directors, head athletic trainers, head coaches, and their respective athletics staff members consider HIV transmission a critical health issue in college sports programs.

Statement of the Problem

The problem of this study was to investigate and compare knowledge and attitudes of head athletics directors and head athletic trainers in the Southwest Conference (Division 1A) and the Southland Conference (Division 1AA) concerning HIV and AIDS issues related to transmission, prevention, and protection within intercollegiate athletics programs in higher education.

Purpose of the Study

The specific purposes of this study were as follows: (a) to determine the current knowledge of head athletics directors in the Southwest Conference and the Southland Conference concerning HIV and AIDS issues related to transmission, prevention, and protection within intercollegiate athletics; (b) to determine the current knowledge of head athletic trainers in the Southwest Conference and Southland Conference concerning HIV and AIDS issues related to transmission, prevention, and protection within intercollegiate athletics; (c) to determine attitudes of Southwest Conference and Southland Conference head athletics directors concerning HIV and AIDS issues related to transmission, prevention, and protection within intercollegiate athletics; (d) to determine attitudes of Southwest Conference and Southland Conference head athletic trainers concerning HIV and AIDS issues related to transmission, prevention, and protection within the
intercollegiate athletics; and (e) to identify and compare any significant differences in knowledge and attitudes between Southwest Conference and Southland Conference head athletics directors and head athletic trainers concerning HIV and AIDS issues related to transmission, prevention, and protection within higher education's intercollegiate athletics setting.

Research Questions

For the purposes of this study, the following research questions were formulated:

1. Are there any significant differences between the knowledge of head athletics directors and head athletics trainers in the Southwest Conference and Southland Conference concerning HIV and AIDS issues related to transmission, prevention, and protection that affects the delivery of quality athlete health care services for athletes and staff members within Division 1A and Division 1AA intercollegiate athletics programs in the Texas higher education setting?

2. Are there any significant differences between the attitudes of head athletics directors and head athletic trainers in the Southwest Conference and Southland Conference concerning HIV and AIDS issues related to transmission, prevention, and protection that affects the delivery of quality health care services for athletes and staff members within Division 1A and 1AA intercollegiate athletics programs in the Texas higher education setting?

Historical Perspectives for the Study

HIV-Related Background in Higher Education

A discussion of the historical perspectives concerning HIV and AIDS related background in the higher education setting can be reviewed in the Synthesis of Related Literature section of this document. Having reached the mid-
point of the second decade of the HIV and AIDS epidemic in higher education, college administrators, faculty, health care providers, and support personnel are challenged to reinforce the mission of higher education with adequate educational strategies to successfully deal with HIV and AIDS-related issues. It is hoped that the result will be improved personnel health choices for students and college personnel within the higher education setting.

**Delimitations**

1. This study is confined to descriptive analysis regarding attitude comparisons between head athletics directors and head athletic trainers as athletics administrators and health care practitioners in athletics health care programs and services within the Southwest Conference’s (Division 1A) and the Southland Conference’s (Division 1AA) intercollegiate sports management programs in higher education.

2. This study is limited by the self-reported responses of the participants selected within the Southwest and Southland Conferences.

3. This study is limited by the number of participants surveyed.

4. This study is limited to a specific environmental setting and geographical location within the field of higher education investigation and concerning the research findings.

**Definition and Explanation of Terms**

The following terms are defined and explained as each relates to this study:

**AAP**: American Academy of Pediatrics, which has formed an active publishing Committee on Sports Medicine and Fitness.
ACHA: American College Health Association concerned with issues of health care and health services provided to students and institutional staffs on approximately 3,300 college and university campuses in the United States.

AGB: Association of Governing Boards of Universities and Colleges

AIDS, HIV, and STD: Acquired Immune Deficiency Syndrome (AIDS), an incurable disease widely thought to be caused by the Human Immunodeficiency Virus (HIV), which lives and grows in human blood where it breaks down the body’s immune defense system. It is currently thought that anyone infected with HIV is susceptible for the remaining years of his or her lifetime, generally a 2 to 10 year-plus developmental and terminal phase. Throughout this critical and fatal phase, HIV-positive individuals remain susceptible to various life-threatening infections and illnesses that are not found in healthy body systems. In addition to HIV, other Sexually Transmitted Diseases (STDs) are represented by gonorrhea, Chlamydia Trachomatis, primary and secondary syphilis, genital herpes, genital warts, hepatitis B infection and associated inflammatory pelvic diseases. (Texas Department of Mental Health and Mental Retardation [TDMHMR], 1991).

AIDS Hypotheses: two unrelated hypotheses developed through medical science research concerning the explanation for the causes of clinical AIDS.

The Drug-AIDS Hypothesis: predicts that AIDS clinical conditions observed in AIDS patients in the United States and Europe are preventable by stopping the consumption of recreational drugs and the utilization of anti-HIV treatment drugs, such as AZT, ddl, and ddC (Duesberg, 1992).

The Virus-AIDS Hypothesis: predicts that AIDS is caused by the Human Immunodeficiency Virus (HIV), which attacks several key cells (known as T-cells) in the body’s immune system. HIV causes a gradual deterioration of the cell’s immunologic function, which leaves the infected person susceptible to a wide
A variety of HIV-related diseases, resulting in AIDS and eventually death (Calabrese & Kelly, 1989).

AMA: American Medical Association.


Athletics Director (Head): the top department administrator in a higher education institution's athletics setting, who has professional, legal, and ethical responsibility for all ongoing activities and programs within a department of athletics.

Athletic Trainers (Head): the top health care administrator within an institution's athletics department, having daily responsibilities for the athletics health care program and services, directly affecting the personal well-being of student athletes and department staff members involved in activities within the athletics setting.

Athletics Health Care Workers: generally, those professional people (including students and trainees) whose daily job responsibilities and health care activities involve possible contact with an individual's blood or with various body fluids from athletes and/or staff members within the athletics setting.

ARC: AIDS-related complex, a series of milder clinical conditions which HIV-positive patients develop prior to developing clinical AIDS within an approximate 3 to 5 year period (Pratt, 1986).

CDC: Centers for Disease Control, Atlanta, Georgia.

HBV: Hepatitis B virus infection, up 37% from 1979 through 1989 in the United States. Approximately 250,000 to 500,000 acute and chronic forms of HBV infections are reported annually in the United States (CDC, 1991).

Health Education: a sector of education that encompasses three distinct spheres in public health and public education program delivery to individual
citizens, providing enhanced (a) health care services focusing on prevention, protection, and promotion; (b) personal health choices and practices; and (c) health awareness programs and instruction. Each health education sphere of influence interacts with the others to provide health goals, objectives, processes, and avenues of opportunity for the improved mission of public health and education programs through focused psychological and physiological wellness interaction and the empowering of individuals within local communities, nationally, and globally (USDHHS, 1991).

Health Prevention: services that include counseling, screening, immunities, or interventions for individuals in clinical settings. Specific priority areas for these strategies include heart disease and stroke, cancer, diabetes, chronic disabling conditions, HIV infection, sexually transmitted diseases (STDs), and infectious diseases (USDHHS, 1991).

Health Promotion: strategies related to individual lifestyle with personal choices made in a social context which can have a powerful influence over personal health status. Specific educational priorities include fitness and sports wellness activities; nutrition; tobacco, alcohol and drugs; family planning; mental health and mental disorders; and violent and abusive behavior (USDHHS, 1991).

Health Protection: strategies related to environmental or regulating measures that provide protection to population groups. These specific strategies address various issues, such as unintentional injuries, occupational safety, and oral health. Applied interventions are generally both protective and promotional in nature, but the principal approaches involve a community-wide focus versus an individual focus (USDHHS, 1991).

HIV-Transmission: includes several methods, with virus presence found in certain body fluids, such as blood, semen, and vaginal fluids. There are only three confirmed ways in which HIV can be transmitted from one person to another:
(a) sexual contact which allows for the exchange of various body fluids;  
(b) specific body contact with (or exchange of) blood or blood products; and  
(c) infected mother to child (prenatal or during the nursing of an infant) (Yarber, 1989).

**Inservice Education Endorsement and/or Certification Programs:** programs that provide the professional practitioner an opportunity to obtain the necessary competencies identified as being unique to his or her profession. The percentage of all programs established under this set of variables for certification is 97% nationally (Gilley, 1988).

**MAC:** mycobacterium avium complex, commonly observed in the clinical conditions for AIDS, resulting in drastic weight lost, anemia, and an inability to absorb nutrients. These bacteria are common in soil and water, but rarely harm people with healthy immune systems (Nightingale, 1993).

**MHC:** major histocompatibility complex involving an individual’s genetic make-up related to a genetically determined immune response (Pratt, 1986).

**NATA:** National Athletic Trainers’ Association, Dallas, Texas, a national and international professional membership of 20,000 health care practitioners and associated members. Approximately 40% of NATA’s membership is professionally involved in interscholastic sport programs, 40% in intercollegiate sport divisions, and 20% as health care, sports wellness training educators and practitioners within professional sport divisions (NATA, 1992c).

**NATABC:** National Athletic Trainers’ Association Board of Certification, Inc., Dallas, Texas.

**NCAA:** National Collegiate Athletic Association.

**NCHCA:** National Commission for Health Certifying Agencies.

**NIH:** National Institutes of Health, an entity of the United States Department of Health and Human Services (USDHHS), United States Public
Health Service (USPHS), and Federal Centers for Disease Control and Prevention (CDC).

**NOCA**: National Organization for Competency Assurance.

**PRC**: polymerase chain reaction, a technique to critically measure from 1 to 10 HIV-infected cells in a total of 100,000 uninfected cells (Fauci, Graziosi, Demarest, Vaccarezza, Gantt, Muro-Cacho, & Pantaleo 1993; and Hasse, Embretson, Zupancic, Ribas, Burke, Racz, & Tenner-Racz, 1993).

**OSHA**: Occupational Safety and Health Administration a federal agency within the structure of the USDHHS.

**SLC**: Southland Athletic Conference, intercollegiate athletics program consisting of 10 Texas and Louisiana-based public universities of higher education participating in the NCAA Division 1AA amateur sport programs.

**SWC**: Southwest Athletic Conference, intercollegiate athletics program consisting of 8 Texas-based public and private universities of higher education participating in the NCAA Division 1A amateur sport programs.

**Sports Wellness**: the ongoing process of developing the sport participant to his or her maximum potential, physically, mentally, emotionally, and socially, through optimum physiological and psychological development, utilizing the latest modern developments and techniques in health care, sports medicine, sports rehabilitation, preventive medicine, and other related health sciences.

**Sports Wellness Training Professional**: any individual given the professional, ethical, and/or legal responsibility and authority, based on a credentialed background of experience, to provide a healthful environment for the sport participant, realizing an opportunity to promote and advance an athlete’s maximum health wellness potential. Achieving one’s maximum sports wellness potential directly relates to personally realizing one’s optimum physiological and psychological development and performance. Examples of sports wellness
training professionals include (a) certified athletic trainers and assistant athletic trainers; (b) coaching staff members; (c) individual sport teams’ physician(s); (d) exercise physiologists; (e) nutritionists; (f) the teams’ sports psychologists; and (g) athletics department administrators (head and assistants) or sports management personnel.

**USDHHS:** United States Department of Health and Human Services is a federal entity within the United States Government that exercises control over the United States Public Health Service, Federal Centers for Disease Control and Prevention, and the National Institutes for Health and Safety Administration (USDHHS, 1991).

**WHO:** World Health Organization.
CHAPTER II

SYNTHESIS OF RELATED LITERATURE

Introduction

The HIV epidemic is a public health and higher education challenge that must be met straightforwardly with comprehensive understanding, compassion, and a progressive agenda regarding the epidemic’s complexities and future impact within all facets of our nation’s higher education programs. An understanding of the interrelationship of HIV and AIDS should incorporate a thorough review of the literature, which includes the biotechnical, global, socioeconomical, educational, and intercollegiate athletics health care perspectives.

HIV has been researched more than any other virus known to mankind, yet no vaccine has yet been developed through mid-1995. The rate of heterosexual HIV transmission among youth has increased 44% since September 1989 (American Medical News, 1992). The Federal Centers for Disease Control (CDC, 1995) estimate that there are approximately 1.5 million confirmed cases of HIV infection nationwide. The number of unconfirmed HIV infected people remains unknown. The number of newly confirmed AIDS cases in the United States in 1994 was 80,691, bringing the total AIDS cases to 402,000 throughout the United States. The number of HIV-infected individuals to die from AIDS in 1994 was approximately 38,000 (CDC, 1995).

Haseltine (1993) related that he is scientifically convinced that HIV infection is so prevalent and so resilient that “it will be a serious problem for the indefinite future” and at least for several generations (p. 13A). He took this position after a decade of intense involvement in the search for an HIV cure at the
Dana-Faber Cancer Institute. Medically speaking, Haseltine (1993) related that HIV has infected more than 20% of the adult population in many areas of the world. Assuming that no vaccine is forthcoming, he estimated that by the year 2025, one billion cases of HIV and/or AIDS will be confirmed worldwide.

Additionally, McKeganey and Barnard (1992) state that HIV infection may or may not be thought of as a disability. Nevertheless, HIV infection and AIDS represent an enormous continuum of disabilities experienced by those living with HIV-related diseases, which will probably increase as the survival rate is prolonged.

Unfortunately, knowledge alone is not enough to make sufficient impact among various higher education populations within our educational communities. Strunin and Hingson (1987) reported that 70% of adolescents studied revealed that they were sexually active, with only 15% reporting any changes in their sexual behaviors due to concern about HIV transmission and AIDS. Only 3% were using effective methods of prevention. Two years later, after more than 8 of 10 adolescents had an opportunity to actively discuss HIV and AIDS within the campus setting, two-thirds of the sexually active still reported engaging in sexual activity without proper prevention techniques.

Student athletes are no exception to the norm. Statistics revealed by DiClemente (1990), similar to Strunin and Hingson’s study, show cause for establishing new agendas, new avenues, and new educational awareness approaches to the inner-psychological and critical-thinking processes regarding individual attitude and behavior modifications toward HIV infection and transmission prevention. It could be concluded that our youth and young adult populations have yet to develop the required personal health convictions regarding HIV and other STD infections, or that they are not conducting themselves in a
responsible manner regarding specific risk behaviors leading to transmitted HIV and STD infections.

AIDS has become one of the three main causes of death from illness in the United States for men and women ages 15 to 44 years. The United States Surgeon General (Novello, 1993) presented an updated Surgeon General’s Report (first since 1986) on HIV and AIDS to the 9th International Conference on AIDS held in Berlin. Novello gave this advice:

Don’t inject drugs and don’t engage in high-risk sexual behavior . . .
The surest way to protect yourself against HIV infection . . . is not to have sex at all, or to have sex only with one steady, uninfected partner . . . But unfortunately, more and more young people are getting [HIV] infected. (Painter, 1993c, p. 1A)

A majority of the nation’s respective states’ health authorities do not collect or release HIV statistics, only confirmed AIDS cases which can develop as much as 10 to 12 years after infection with the Human Immunodificiency Virus. To protect confidentiality, state health officials do not identify a cluster of AIDS cases smaller than 10, with statistics released by county health department officials solely and not by individual clinics, hospitals, public and private schools, or other community-based public and private entities.

As a direct result of the method used to report HIV infection cases, the general public may tend to feel that HIV and AIDS cases are minimal and/or over-emphasized as a local community public health issue. Unfortunately, this reality diminishes the critical demand for immediate and responsible individual or community response that is committed to successfully meet the challenge regarding effective public health awareness concerning the prevention of HIV transmission.
Historical Perspectives of HIV/AIDS

HIV’s Second Decade in Higher Education

As we pass the mid-point of the second decade of the HIV epidemic in higher education, the words of a physician (Boghurst, 1894) writing of the desertion of his colleagues during the Great London Plague of 1665 should be recalled to reinforce the mission of higher education in the minds of college administrators, health care providers, and support personnel:

Every man that undertakes to be of a profession or takes upon him any office must take all parts of it, the good and the evil, the pleasure and the pain, the profit and the inconvenience altogether and not pick and chuse [sic], for ministers must preach, captains must fight and physicians attend the sick.

(Jonsen, 1988, p. 61)

Additionally, college board chairs and presidents must progressively preside; administrators must effectively manage; faculty and counselors must provide understanding, compassion, and direction; and health care practitioners must provide adequate health prevention and protection services. Together, they must successfully interconnect and interact to enhance the level of knowledge and understanding among college students, athletes, and college personnel. In this way they can combat the HIV epidemic through developed educational inservice program models, focusing on HIV awareness, prevention, and protection. The result will be improved personal health choices for students and college personnel within the higher education setting.

HIV: Its Impact on Higher Education

The Association of Governing Boards of Universities and Colleges (Keeling, 1990) issued a special report concerning what governing board members need to know about AIDS, which is the most advanced phase of HIV infection.
Individuals who are HIV-infected might experience no symptoms, some symptoms, or extensive symptoms along an HIV-related disease continuum of 28 associated clinical conditions. The 28 associated diseases can be brought on by infections that are either protozoal, fungal, bacterial, or viral in nature.

Since the first 188 AIDS cases were reported in the United States in 1981, approximately 412,000 cases have been confirmed representing race/ethnicity: 52.3% white; 29.9% African-American; 16.6% Hispanic; .63% Asian; .2% Native American; and .2% unknown (CDC, 1993, 1994). The proportion of Americans with AIDS is as follows: gay men represent 62%; African-Americans, 30%; women, 10%; heterosexuals, 7%; and teenagers, less than 1% (CDC, 1993, 1994).

New AIDS cases due to heterosexual transmission increased over 100% for males and females from 1989 through 1992 (United States Surgeon General, 1993). Worldwide, the predominant mode of HIV transmission is heterosexual intercourse (Vincenzi & European Study Group, 1994) with over 17 million men, women, and children HIV-infected and 40 million people projected to be HIV-infected by the year 2000. Meanwhile, in the United States, the percentage of new HIV-infected Americans are among the following groups: gay men, 39%; African-Americans, 43%; women, 17%; heterosexuals, 10%; and teenagers, 3%. There are approximately 60,000 to 80,000 new AIDS cases confirmed in the United States annually, costing on average $119,000, reflecting $50,000 spent before the onset of AIDS and $69,000 spent after diagnosis (CDC, 1993; AMA, 1993).

A 22 state study by the CDC (1993) showed HIV infections declining among gay men but rising sharply among African-Americans, teens, and women, directly impacting the higher education sector in future years. A more recent CDC study (1995) showed that men who acquired HIV through gay sex increased by 30% nationwide between 1989 and 1994. The rate for white males 13 years and older increased by 14%. HIV infections rose by 79% for African-Americans and
61% for Hispanics. The AIDS rate remains low in rural areas, but increased by 69% during the study’s period, compared with 24% for the largest metropolitan areas.

AIDS and related infections have surpassed accidents, cancer, and heart disease as the leading killer of young adults in an increasing number of American cities and states. AMA (1993) mortality data from 1990 found that AIDS and illnesses related to HIV infection were the number-one killer of young men in five states and 64 cities, along with more than half of young men’s death in other cities nationwide. Among young women, AIDS and HIV-related illnesses were the leading cause of death in 9 cities. New cases were 5 times more common among black men and 15 times more common among black women than among whites. Intravenous drug-users in the Northeast accounted for 24% of cases among minorities (CDC, 1993).

A report released by the United Nations Development Program (1993) reveals that among sexually active people, those being infected with HIV at the fastest rate are women in their teens and early 20s, including women who have had relatively few sexual encounters. Women between 15 and 25 years of age make up approximately 70% of the 3,000 women a day who become HIV-infected and of the 500 women a day who die of AIDS-related diseases. The study found that as women grow older, they become less likely to contact HIV, even though on average, their number of sex partners increases. Men, by contrast, do not encounter their peak risk for HIV and AIDS-related diseases until they are in their late 20s and early 30s. The report related that the study’s findings can be traced to a variety of causes focusing around social and behavioral factors. The report concluded that in most of the Third World countries, where AIDS is overwhelmingly a heterosexually transmitted disease (HTD), there are as many female HIV/AIDS-related cases as male confirmations and sometimes more.
According to the study by Melnick et al. (1994), HIV-infected women face a greater risk of death, but not disease progression, than HIV-positive men. Women were at an increased risk for bacterial pneumonia. The study concluded no biological reasons for the death rate difference, except that women were less likely to have access to medical care. Melnick et al. (1994) studied 768 women and 3,779 men who were using health care centers in 13 cities across the United States. Fifty percent of the subjects were African-Americans or Hispanic, and 20% were women. Causes of death were not noted for 46% of the 105 women and 36% of 700 men. Many of the HIV patients did not die in hospitals, which made it difficult for the researchers to track down all death-related information. The study's findings may reflect differential access to health care and standard treatments or different socioeconomic status and social support for women compared to men. The study's authors noted that AIDS in women increased 20-fold between 1981 and 1990.

Nationally, AIDS and related infections were the second-leading cause of death among young men, following unintentional injuries, and sixth among young women, after cancer, unintentional injury, heart disease, suicide, and homicide. AIDS is a public health emergency that kills an average of 92 Americans each day (USDHHS, 1993). Selik, Chu, and Buehler (1993, p. 2991) wrote, "Although [HIV/AIDS-related] deaths among young adults made up only 7% of the United States deaths from all causes in 1990, they are disproportionately disruptive to society . . . Such premature deaths result in the loss of many productive years of life." Vermund (1993, p.2817) stated that the health crisis of HIV-AIDS "is of immense significance in the United States and will remain so beyond this millennium." Adolescent and young adult HIV transmission guarantees the continuation of the HIV/AIDS epidemic, barring a substantially expanded national prevention effort (AMA, 1993).
Biotechnical Review of HIV

HIV-Related Background in Higher Education

In 1957 Arno Motulsky (1988), as a professor of medicine and genetics and director of the Center for Inherited Diseases, set up a genetic unit in the Department of Medicine at the University of Washington. With special funding assistance from the Rockefeller Foundation, Motulsky (1988) tested his hypothesis concerning a rapid screening test for a specific genetic trait deficiency common in persons of African origin who also had contracted malaria. The test involved correlating the frequency of the genetic trait with confirmed malarial cases in various central African populations through 1959. Many blood samples were taken from malarial and nonmalarial populations, then tested and studied, with blood samples kept in refrigerated storage for future studies. The malarial hypothesis developed by Motulsky (1988) was correct. In short, various central African populations that had a specific genetic trait deficiency were more susceptible to contracting malaria.

First Recorded Observance of HIV's Origin

In 1979 Fredrick Siegal (Crowley, 1992), a clinical immunologist at New York's Long Island Jewish Medical Center, watched a mysterious and unknown immune disorder kill a young woman from the Dominican Republic under his care. In the early 1980s, when a specific test for HIV antibodies was developed, researchers began to test stored blood samples from various time periods in different parts of the world to learn the geographic origin of HIV. A single Congo blood sample showed a positive result for HIV, passing four specific tests of medical confirmation. This blood sample is the earliest known HIV-positive serum found, and it is the first documented case of HIV infection in man globally (Motulsky, 1988).
Pratt (1986) and other experts gave insight into the researched origins of HIV that have led to a general agreement as to the source of the epidemic. Pratt concluded that HIV is a pathogen new to humans, probably resulting from a non-pathogenic primate retrovirus. Biggar (1986) described this primate retrovirus as making a "species jump" from the African green monkeys to humans.

Pratt (1986) further noted that the virus may have been transferred to humans as a direct result of monkey bites or by humans eating the uncooked meat and blood of the HIV-infected monkeys. Cases of AIDS in Africa became known at about the same time as American and European cases were confirmed in 1981. It is very likely that human HIV infection existed in Africa long before HIV and AIDS were officially recognized by medical experts. Motulsky (1988) also postulated that it is probable that HIV has been present in humans in central Africa for a long period of time and began to spread more widely due to sociocultural changes such as urbanization, increased travel, and prostitution. Today HIV and AIDS have been confirmed in over 150 nations worldwide and in all states and territories of the United States.

**HIV Infection Genetically Determined**

Pratt (1986), in writing the first medical text for nursing and health care personnel, explained that the degree of susceptibility to HIV may be related to a genetically determined immune response controlled by an individual's genetic make-up referred to as a major histocompatibility complex (MHC). The MHC is a system of genetically linked antigens called human leukocyte antigens group A (HLA), controlled by a complex of genes on the sixth chromosome. These genes occur on four different regions of the sixth chromosomes, and the exact arrangement of these genes differs from individual to individual. Research findings by Friedlman and Kien (1982) and Giraldo and Berth (1986) have
suggested that a genetic predisposition may be one aspect that determines final AIDS expression in HIV-related diseases for those who are HIV-infected.

Calabrese and Kelly (1989) discussed how HIV attacks several key cells in the body's immune system known as CD4 T lymphocytes or T-cells. HIV causes a gradual deterioration of the cell's immunologic function, which leaves the infected person susceptible to a wide variety of HIV-related diseases. Also, an HIV-positive person may develop neurologic diseases. The risks of deterioration continually increase with time until HIV carriers develop AIDS and die.

For every person confirmed to have AIDS, there are 5 to 7 HIV-infected individuals with a milder illness know as AIDS-related complex (ARC). They may be severely incapacitated or relatively well. Approximately 20% to 30% of ARC patients develop AIDS within 3 to 5 years (Pratt, 1986). Likewise, for every ARC confirmed case there are 5 to 10 individuals with very mild conditions who are said to be healthy carriers. These individuals are capable of full-time employment as well as participation in competitive sports. Magic Johnson is an example of this type of HIV-infected individual. Current estimates suggest that within 5 to 7 years, 30% or more will develop serious and life-threatening complications (Calabrese and Kelly, 1989).

HIV: Hard Questions Unanswered

After 16 years since HIV/AIDS was first observed in unsuspecting patients in the United States, medical researchers still have major questions that need answering as quickly as feasible. Cohen (1993b) related, "no cure or vaccine exists. After a decade of struggling in frustration as the [HIV] epidemic gallops on, researchers are being forced to re-examine assumptions they once held without question" (p. 1712).

The two most respected HIV and AIDS researchers, both in the United States and globally, are Robert Gallo (1993) of the National Cancer Institute and
Anthony Fauci, head of the National Institute of Allergy and Infectious Diseases. The work of Fauci et al. (1993) has been cited 3,735 times nationally and internationally. Gallo’s lab conducted 171 HIV/AIDS research studies and reports between 1988 and 1992. Gallo will leave his position with the federal government and join two other prominent AIDS researchers to establish their own public/private center called the Institute of Human Virology. A Science (1993, May 17) review of 3,000 journals showed 5 of the 10 most published AIDS researchers and 9 of the 10 most often cited researchers are from the United States.

Fauci et al. (1993) stated that “we’re starting to see that we’re dealing with a very complex, multiphasic disease” (p. 355). Newer research suggests that HIV does not work alone and that it may, for example, trigger immune reactions that ultimately destroy immune system cells that are never actually infected with HIV. Gallo warned (Cohen, 1993a), “You must stop HIV first, but it may not be enough” (p. 483). Finding effective treatments could require more than stopping HIV. It could require turning off whatever destructive forces HIV has released within a body’s system. A number of questions concerning HIV/AIDS need solutions. Among them are the following:

1. Just what causes the immune system collapse observed in AIDS? This question is the singularly most important and also the most basic.

2. How can HIV replication be controlled? So far, HIV drugs have subdued the virus only temporarily.

Medical researchers have found that a drug called pentorifylline suppresses cachectin, which is released by white cells during an infection and acts like a hormone in the immune system by instructing other cells to combat invading organisms (Fauci et al., 1993). Kaplan (1993) has worked with the drug sedative Thalidomide, which selectively suppresses cachectin and defends against infection and which has been the subject of intense research in cancer and other diseases.
Cachectin is believed to play a crucial role in triggering the progression of full-fledged AIDS. Thalidomide is one of approximately 400 substances that medical researchers are studying to thwart HIV's progression. The drug is also part of a new approach to modify the body's immune system. Studies have shown that the drug reduced damage to the lungs and other organs during tuberculosis infection and severe skin reactions in leprosy, along with mouth ulcers that often develop in AIDS patients (Fauci et. al., 1993).

3. Can combinations of drugs prevent the development of drug resistant HIV strains? A study shows that three drugs could disable the virus in a test tube, but there's no guarantee that the strategy will work in people (Chow et al., 1993).

4. Why do some individuals remain uninfected despite repeated sexual contact with infected individuals? HIV-hunting blood cells may play a major role in protecting some African prostitutes from infection with HIV, as concluded by Rowland-Jones et al. (1995). The killer cells are called HIV-specific cytotoxic T-lymphocytes, previously found in HIV-infected people without AIDS. Researchers suspect that these cells may have kept the Gambian prostitutes from HIV infection. The women may have first encountered and somehow fought off HIV-2, a less dangerous form of the virus than HIV-1, and then built up immunity to both HIV types.

5. Is there an unknown factor in the immune system that allows some people to fend off the virus? If so, what is it? One area of study for a possible solution is gene therapy. This investigation might involve inserting protective genes in bone marrow cells that could travel throughout the body's system.

In 1993 molecular biologists celebrated the 40th anniversary of the findings of Nobel Prize recipients James Watson and Francis Crick (1962). Their landmark research regarding the "double-helix" structure of the DNA molecule has contributed to the understanding of the pathology of disease, the ability to
diagnose disease gene defects, the creation of new drugs, and the promise of genetic therapy encompassing enhanced molecular-genetic knowledge over the past 40 years.

As published in *Nature* (1953, May 30), it became clear that the sequence, or order of different bases along a DNA strand, was a secret code passed from a cell to its duplicate offspring. In living things, genetic information is transformed into proteins, long chains of amino acids that provide the building materials for cellular structures and perform the chemical reactions needed to sustain life. The order of the bases within a DNA gene provides the cell with instructional blueprints from amino acids to link-up and in what order to make a particular protein. Watson and Crick's (1953) DNA model is just beginning to produce its greatest scientific, medical, and economic dividends. Biotechnology is still an industry in its infancy. Medical applications of the molecular genetics based on DNA's structure have just begun to enter the clinics (AMA, 1993).

6. What laboratory test is the best measure of disease progression?

Mellors et al. (1995) have recently published the results of a study which shows that a new test for HIV may now be used for predicting which people with HIV will quickly become sick with AIDS and which will remain healthy for up to 10 to 12 years. The study included 62 gay men whose approximate date of HIV infection was known. It found that those with persistently high levels of HIV genetic material in their plasma in the 2 years after infection were very likely to develop AIDS or significant immune system damage within a few years. Those patients with low levels of HIV infection were unlikely to become sick in the immediate future. The new test is not yet approved for widespread use.

7. Why is there so much variation in the time it takes to develop AIDS after infection with HIV? The average period is considered to be 10 years, but some
people progress to AIDS within a year or two, whereas others go for a decade or more without developing serious symptoms.

8. Is the variation due to random chance or to some undetected genetic, environmental, or behavioral factor?

9. Kaposi’s sarcoma was a rare cancer before it became common in people with AIDS. Why has it so overwhelmingly affected gay men, but rarely women, children, and recipients of transfused blood?

10. Just how safe is the world’s blood supply?

Prior to a developed HIV antibody test for blood introduced in 1985, approximately 20,000 hemophiliacs and blood transfusion patients were infected in the early 1980s. A special report was released by the Institute of Medicine (Painter, 1995) that studied the problems associated with HIV-infected blood in the United States during this period. The following critical mistakes were found to have occurred: (a) blood banks refused to turn away high-risk donors, and government agencies did not enforce standard regulations established to ensure pure blood collection procedures; (b) technology that could have made blood treatments safer for hemophiliacs was not developed quickly enough, and blood products likely to have been contaminated were not recalled when safer versions became available; and, finally, (c) physicians failed to tell hemophiliacs and transfusion recipients about risks and alternative treatments.

The report stated that the current system effectively protects blood from known infectious agents but needs improvement in its ability to recognize and guard blood recipients against any future threats. The recommendations developed by the study group for federal health officials were as follows: (a) appoint a blood safety director and a council to coordinate efforts by various agencies; (b) increase surveillance of new diseases at the CDC; and (c) give the
FDA the authority to take more immediate action when a threat is recognized (Painter, 1995).

Contaminated blood around the world still poses a health problem regarding the transmission of HIV. The following overview provides insight into the most recent problems with HIV-infected blood (Staff, 1993c):

**Americas**

**Brazil:** An estimated 2,200 of 5,500 hemophiliacs have contracted HIV. A campaign by relatives of a famous hemophiliac cartoonist inspired a clean-up of blood banks and a ban on paid donors. The main cause was poor testing techniques in remote areas of the country.

**Canada:** Health authorities admitted they knew HIV-infected blood was being distributed to hemophiliacs in the early 1980s.

**Europe**

**Italy:** One in four hemophiliacs is infected with HIV. The former health chief was accused of allowing unscreened blood products almost one year after mandatory testing was required.

**Russia:** There are estimates that more than 30,000 are infected with HIV. The rate is increasing rapidly from a rise in prostitution and drug abuse and an outdated health care system. Blood products are screened, but there is a high risk with a paid donor system still utilized.

**Spain:** The government has agreed to pay the equivalent of $87,000 to 1,200 hemophiliacs infected before 1985. Nearly 50% of the nation’s hemophiliacs are HIV-infected.

**Britain:** The government has paid compensation to an estimated 1,200 hemophiliacs HIV-infected with imported American blood products prior to 1985.
Africa

Zaire: The health system was dependent on Western funding, which has now stopped. There are fears that HIV screening of blood has also stopped. About one in five HIV-infected children is said to be infected by contaminated blood.

The Ebola virus outbreak in Kikwit, Zaire, in 1995, which killed approximately 200 people, serves as an ominous reminder of the deadly viruses that are increasingly emerging and how easily they can be transmitted worldwide. Preston (1994) wrote, “The world is now linked up biologically . . . we exist in a biological web of airline routes. What happens in one part of the planet can happen somewhere else the next day . . . It is part of a larger global phenomenon” (Preston, 1994, pp.1-5). Physicians who deal with infectious diseases on a daily basis see new resistant strains of viruses and bacteria that could cause continued public health problems around the world.

Uganda: Uganda is one of the worst-affected countries in Africa, and its HIV infection rate is reaching 60% in some villages. Most cases come from heterosexual intercourse. The government is trying to switch to a voluntary blood donor system.

Kenya: Most reported AIDS cases are from heterosexual intercourse. Kenya relies on a family donor system.

Nigeria: In the populous Lagos state, a law imposes a stiff fine or prison sentence if a doctor transfuses untested blood or blood products into a patient.

Asia

China: With a population of over 1.1 billion people, only about 1,100 individuals have tested positive for HIV. Blood testing is patchy. An estimated 20% of Chinese who receive blood contract hepatitis, which indicates a risk of
HIV infection from blood, but there are few instances reported so far. China relies heavily on a paid donor system.

Japan: About 2,000 hemophiliacs were infected with HIV before 1985, with lawsuits still pending in 112 cases. The paid blood donor system was stopped in 1990.

India: The government is trying to do away with its high-risk paid donor system. Blood is screened in urban areas but not in villages. Fewer than 5% of the estimated 1 million HIV cases are said to be from blood transfusions.

11. Kaposi's sarcoma has apparently decreased in incidence in the past few years. Why? Is it caused by a virus other than HIV?

12. Why is it that chimpanzees can be infected with HIV, but do not get sick from AIDS?

It is for this reason that a group of medical scientists recommended during an FDA hearing to approve medical testing, allowing an AIDS patient to receive a baboon bone marrow transplant to fight HIV replication (Staff, 1995). The FDA usually follows advisory committee recommendations. FDA officials indicated that a decision could be made in several weeks following the July 1995 hearing.

Baboons do not contract HIV-1, the most prevalent HIV-type virus in the United States. Suzanne Ildstad, of the University of Pittsburgh, plans to inject her AIDS patient as soon as FDA approval is granted. The theory is that the transplant could resupply the patient's blood stream with HIV-resistant blood cells. It is usually impossible to transplant bone marrow between genetically dissimilar people, much less between different species. This experiment has been tried once before by others and failed. Doctor Ildstad believes that she will be successful because she has discovered "facilitating cells" that appear to prevent the body from destroying transplanted marrow.
13. How does HIV cause the immune system to collapse? Medical scientists now believe that stopping the virus will not be enough. Efforts must also "fix" the immune system through immune system repair. This might include drug utilization along with transplants of key immune system components, such as bone marrow and the thymus gland.

Additionally, HIV vaccine researchers are asking the following questions:

14. Which of the two arms of the immune system, the one that produces antibodies or the one that uses mechanisms produced by immune cells, is more important in producing vaccine-induced immunity?

One antiretroviral that continues to work effectively, at least in some people sometimes, is the body's immune system. For several years evidence has steadily been building concerning HIV-infected people who remain healthy despite being infected for years. This group may provide answers to the puzzle of how to prevent the disease from progressing. A consensus is building that cell-mediated immunity (CMI) is crucial in protecting HIV-infected people against AIDS. The CMI arm of the immune system attacks already-infected cells. In contrast, the humoral arm produces antibodies that lock onto free-floating viruses and prevent them from initially infecting cells (Cohen, 1993a).

CD8+ T-cells are the focus of the CMI system. Levy, a University of California researcher, has found that they secrete an unidentified soluble substance that suppresses replication of HIV within infected cells. Levy has been studying HIV-infected people who remain healthy for over 12 years. He concluded that "efforts directed at these cellular immune processes and attention to the CD8-positive cell antiviral factor could lead to long-term survival for all HIV-infected individuals (Cohen, 1993a).

Moreover, Fauci et al. (1993) described a study that may be boosting CMI in people whose immune systems have been seriously damaged by HIV. NIAID's
Lane and Kovacs (1993) have been infusing patients with interleukin-2 (IL-2), a chemical messenger that is known to stimulate CMI. Patients repeatedly infused with IL-2 had enormous boosts in their number of CD4 T-cells. Fauci has cautioned that it is premature to draw conclusions from the study due to the low number of patients involved in the study (Cohen, 1993b).

Additionally, Jonas Salk also was a CMI proponent. He believed he had evidence that the approach can boost the immune system, making it perform beyond its normal capacity range. Since 1987, and along with California’s Immune Response Corporation (IRC), Salk had been testing an HIV vaccine made from whole killed virus (minus part of the HIV’s surface protein) in infected patients (Cohen, 1993b). Salk died in June of 1995, but his research lives on through his co-researchers, and he will remain as an icon in medical science research and its application to enhance public health globally.

Another weapon in the growing arsenal of gene-therapy research against AIDS has been introduced by Wong-Staal (1993). She and her colleagues, at the University of California, plan to use a ribozyme to break up HIV’s genetic material. In laboratory tests, ribozymes greatly reduce viral replication in the genetically altered cells. Wong-Staal’s efforts may show that T-cells with ribozymes will survive longer than other cells and eventually help rebuild the body’s defenses. Ribozymes do this by “preventing the invading virus from incorporating its genome into the cell’s DNA or, if incorporation has already occurred, by halting production of new viral genes” (Lipkin, 1993, p. 182). The NIH gave Wong-Staal’s group permission to test this approach in six patients.

The NIH Recombinant DNA Advisory Committee (RAC) also approved a second anti-AIDS protocol, bringing to six the number of preliminary gene-therapy trials against AIDS. The second anti-AIDS approach approved by the RAC revises an earlier study by Greenberg and Riddell at the Fred Hutchinson
Cancer Research Center in Seattle. By removing and sorting through immune-system cells (CD8 T-cells) from AIDS patients, attempts will be made to single out and then, through labwork, greatly boost to over 1 billion such cells that recognize HIV. The boosted cells will then be returned to the body to seek out HIV-infected cells (Lipkin, 1993). Both groups require FDA approval to proceed.

15. What laboratory test best measures protection from experimental vaccines?

16. Just what immune response must a vaccine evoke to protect people from HIV infection?

Early on, researchers thought that it was most important to produce antibodies that attack the HIV, but more attention currently is being focused on activating “killer cells” to completely destroy cells containing HIV.

17. What parts of HIV should be put in a vaccine?

Vaccines work by mimicking the infections they are supposed to prevent, thus teaching the immune system how to attack the real invading virus. Most candidate-HIV vaccines have contained only small segments of the virus, which is thought to be the safest approach. Now researchers are seriously thinking about using whole-killed viruses or even live viruses that have been genetically altered.

According to a 10-year study by Kanki et al. (1995) of 756 prostitutes in West Africa, HIV-infection with a relatively mild type of the AIDS virus seems to protect some people against infection from a more virulent type of HIV. The study’s authors suggest that the findings might help in developing an HIV vaccine modeled after the cowpox vaccine that was used to protect against smallpox.

The study by Kanki et al (1995) was carried out from 1984 through 1994 by researchers from the Harvard School of Public Health and the University of Cheikh Anta Diop in Dakar, Senegal. They found that infection with HIV-2 reduced a woman’s chances of becoming infected with HIV-1 by 70%. The study
also showed that the HIV-2 patients actually developed 50% more gonorrhea than did the other women in the study, indicating no change in personal behavior.

Theoretically, the findings of Kanki et al (1995) may be of help in developing an AIDS vaccine if researchers could determine the specific components of the immune system that might be stimulated by HIV-2 to protect against HIV-1. They suggest that genetic engineering techniques could be used to incorporate the targeted components in an effective vaccine against AIDS.

One example of promising gene therapy results that may be transferable to the study of HIV is a study by Kohn (1995) at Children’s Hospital Los Angeles. The study represents a possible major step toward gene therapy for the treatment of genetic diseases like sickle-cell anemia or immune deficiencies. Kohn presented his project’s results to the Society for Pediatric Research in May 1995. It concerned children who were born in May and June of 1993 with severe combined immunodeficiency, which usually results in death from infection before one year and which is caused by the lack of a gene that makes an enzyme called adenosine deaminase (ADA).

Infants born without the gene must be kept isolated in a sterile environment because their bodies are unable to fight off any infections. The affliction is given the name “Bubble Boy” disease from a boy, identified only as David, who spent 12 years in a sterile chamber in Houston, Texas, before he died in 1984.

In a medical first, Kohn’s (1995) team used blood from the babies’ umbilical cords as a source for stem cells, which are precursors to blood and immune cells. Researchers took the stem cells and added a normal ADA gene that had been transferred into a virus. The children then received transfusions of the corrective cells. Nearly 2 years later, tests show that some of those altered stem cells gave rise to normal disease-fighting cells.
By the end of 1994, the NIAID was hoping to begin a series of 3 year tests on two genetically engineered copies of a protein found on the outer coat of HIV. But a 26-member federal AIDS advisory committee recommended to the NIAID that it postpone an expanded vaccine test from 1 to 3 years. The vaccines do prompt some immune responses, but not all of which scientists suspect are important. Other vaccines, made with other ingredients, are continually being researched. Current data on the two most hopefully vaccines to be tested are not promising enough to justify spending approximately $18 million a year for more than 3 years. Also, the data may be too weak to induce the approximately 10,000 high-risk people needed for the trials, despite the eagerness for an effective vaccine. Researchers also worry that a decision to start a major AIDS vaccine trial will convince many high-risk people, both in and out of vaccine trials, that the candidate vaccines are highly promising. Vaccine researchers admit that an effective HIV vaccine may still be several years away.

18. How will vaccine volunteers (who would presumably develop antibodies to HIV after vaccination, therefore testing positive for the virus) be protected from discrimination by employers and insurance companies?

19. How can researchers adequately ensure that those who receive the experimental vaccinations do not practice unsafe sex under the false belief that they are protected?

20. Smallpox, poliomyelitis (polio), and HIV may have historical similarities. Will the path to the possible global eradication of HIV, leading to AIDS-related diseases, mirror that of the smallpox and polio vaccines and their effective eradication as global public health epidemic? (Fauci et al., 1993; Gallo, 1993)
Vaccines: Past, Present, and Future

Smallpox killed millions of people over thousands of years, from ancient Egypt to 20th-century America. Medical science labels it as being the most deadly of all infectious diseases combined around the world. The disease caused convulsions, internal bleeding, and painful lesions. One in four victims died, and survivors are deeply scarred and sometimes left blind. A vaccine was discovered in the 1790s, and almost 200 years of immunizations later, smallpox has become the only disease ever eradicated globally. WHO (1993) wants smallpox clinical vials destroyed to ensure that it will never threaten a now-defenseless world. The NIH opposes the destruction of all lab samples for use in future studies to help control HIV and to find an effective vaccine through historical perspective.

Smallpox vaccinations have ceased except in the Russian, Canadian, Israeli, and United States armies, which fear future biological warfare. The last smallpox death was from a lab accident in England in 1978, before the CDC and Russia had appropriated the world's remaining clinical samples of the virus. Will HIV have a similarly long history, ending with its eventual global eradication?

Polio reports first appeared in medical literature in the 18th century, although it is likely to have existed since much earlier than that. During the next 100 years, the number of polio cases increased, culminating in the great epidemics of the 20th century. Polio first occurred in Norway and Sweden in 1905, and epidemics have since appeared in all industrialized nations, particularly in global temperate zones.

It is generally believed that polio is acquired through the mouth, chiefly by fecal contamination of food, fingers, or other objects, or from carriers who harbor the virus in the intestinal tract. Incubation is from 3 to 35 days. Usually the infection produces no symptoms or only minor disturbances, such as fever and a
feeling of general illness. More pronounced symptoms include headache, sore
throat, vomiting, and body aches, followed by general paralysis.

In general, the virus causes paralysis by attacking the nerve cells that
supply the muscles. One form of polio attacks the cells in the spinal cord and may
involve the neck and trunk. Bulbar poliomyelitis attacks the medulla, the part of
the brain that lies directly above the spinal cord, which includes centers that
control swallowing, speaking, blood pressure, and breathing. The iron lung,
which breathes mechanically for polio patients, was later developed and
successfully utilized.

In 1953, Jonas Salk reported results of a preliminary investigation that
suggested that a triple vaccine made from three types of polio virus inactivated
with formaldehyde might effectively prevent the disease. Later, two safe and
effective polio vaccines were developed, both using viruses cultivated by the
methods developed in 1949 by Dr. John F. Enders and his associates. An effective
oral vaccine, developed by Albert B. Sabin, had been given to over 100 million
persons in the USSR and eastern Europe by the early 1960s, with a perfect record
of safety (Monroe, 1963).

The polio vaccine uses doses of weakened live viruses and is usually given
in syrup or candy. A nearly 100% immunity is claimed for the oral vaccine, which
is thought by its proponents to give a more durable and solid immunity than the
killed-virus vaccine. The Salk vaccine is injected and consists of a mixture of
three types of polio virus, administered in a series of three injections separated by
intervals of 1 to 6 months (Monroe, 1963). Will future biotechnology be able to
develop an effective vaccine, in less time, for HIV as were developed for polio and
smallpox?

In 1993, at the 9th International Conference on AIDS in Berlin, Jonas Salk
and his research team unveiled the findings of their recent 1-year research project.
The study’s critical findings revealed that the levels of HIV measured by a genetic test, increased less in HIV-infected people who received the vaccine than in those who did not. The difference was more pronounced in the second 6 months, suggesting a significant trend (Painter, 1993b). Whereas available AIDS drugs attack the virus directly, the aim of an effective vaccine for HIV-infected people is to boost the body’s natural immune response to HIV invasion in the body.

A study in 1993 may diminish hopes that people already infected with HIV can be helped by a potential vaccine. The results lead medical researchers to believe that the degree of HIV infection among people may, therefore, be underestimated. Researchers from Northwestern University Medical School in Chicago have developed a more sensitive method to test cells for HIV infection. The new technique looks for minute amounts of the virus’ genetic material. Unfortunately, the virus seems to lie dormant and sequestered within many infected cells, out of reach of the body’s immune system (Patterson, et al., 1993).

Methods for HIV Transmission

The transmission of HIV can occur by several methods, with its presence found in certain body fluids, such as blood, semen, and vaginal fluids. Heterosexual, homosexual, or bisexual individuals engaging in risky behavior with an HIV-infected person can acquire the virus from these fluids. There are only three confirmed ways in which HIV can be transmitted from one person to another: (a) sexual contact, which allows for the exchange of various body fluids; (b) specific contact with or the exchange of blood or blood products; and (c) infected mother to child (prenatally or during the nursing of an infant). A person who has an STD and engages in risky behavior with an HIV-infected person may have a greater chance of becoming HIV infected. Blood-to-blood contact between an infected person and someone else is the second most common way HIV is transmitted between individuals (Yarber, 1989).
A vast majority of the documented AIDS cases in the United States fit into classifications that explain how the virus was transmitted. However, in the brief history of the HIV epidemic, approximately 90 American children who fall into none of the risk categories, have contracted the virus. To date, an adequate and satisfactory medical explanation has eluded these victims, as well as various state health department and CDC officials (USDHHS, 1991).

**HIV Counter Theory Developed**

An interestingly debated counter theory to the established virus-AIDS hypothesis, which was discussed by Duesberg (1992), reveals that the American AIDS epidemic is the result of a drug-AIDS hypothesis, concluding that HIV infection and AIDS are unrelated events. Duesberg is the spokesperson for the counter-theory group of researchers who believe that AIDS is independent of HIV and that it is a result of recreational drug abuse in the West and immunization programs in the developing countries. Duesberg (1992) stated, “The duration and toxicity of drug consumption and individual thresholds for disease determine when AIDS occurs, irrespective of when and whether HIV infects” (p. 4).

Consequently, HIV is viewed by some experts such as Duesberg (1992) as a mere marker of symptoms concerning the accumulation of various microbes and viruses that results in AIDS derived from AIDS risk behaviors. This view is supported by statistics from the Institute of Medicine (1988), which reports that HIV antibodies are confirmed in only about 50% of documented AIDS cases. The drug-AIDS hypothesis predicts that AIDS diseases in the United States and Europe are preventable by stopping the consumption of recreational drugs and the utilization of anti-HIV treatment drugs, such as AZT, ddI, and ddC.

Duesberg (1992) links the AIDS epidemic of the 1980s temporally to the escalation in recreational drug use in the 1960s and 1970s. In the United States, AIDS and drug use are found together in a substantial number of cases, and both
affect predominantly the 15-to-44 year old age groups. Duesberg works these coincidences into a causal hypothesis. Intravenous drug use, he contends, accounts for about 30% of the AIDS cases, and oral psychoactive and aphrodisiac drug-intake accounts for an additional 60%. He attributes the remainder to anti-HIV viral agents such as zidovudine.

Duesberg (1992) has concluded that current and future published health strategies should focus on eliminating drug use. His views have received strong support from some sectors within medical science research, where some investigators have been skeptical about the association between HIV and the clinical conditions attributed to AIDS. Root-Bernstein (1990) cited evidence to show the immunosuppressive effects of intravenous drug use, along with its known association to cancer and infections that are typically found in AIDS patients (Horton, 1993).

Additionally, researchers are attempting to isolate other infectious agents that might have a role in AIDS pathogenesis, contributing evidence that HIV-1 is probably a necessary but not sole cause of AIDS (Wright, 1992; Anonymous, 1991). Attention has focused on several species of mycoplasma. Mycoplasmas are a heterogeneous group of the smallest organisms capable of self-replication; they can cause systemic debilitating diseases and profoundly alter immune function (Cole, Naot, Stanbridge, & Wise, 1985; Ruuth & Praz, 1989).

Mycoplasma fermentans, which systematically infect AIDS patients (Lo, Shih, Yang, Ou, & Swant, 1989; Lo, Dawson, & Newton 1989) and previously healthy individuals who have fulminant illness unrelated to HIV (Lo et al., 1989; Lo et al., 1991), enhance the cytocidal effects of HIV-1 in human CD4 lymphocytes (Lo et al., 1991). Therefore, mycoplasma is a reasonable candidate as a co-factor that might increase the development of AIDS in HIV-1 infected patients (Wright, 1992; Anonymous, 1991).
Previously, researchers have isolated unknown mycoplasma on 12 occasions from the urine of 6 HIV-positive patients with AIDS (Lo et al., 1991). Biochemical, serological, and DNA analysis identify it as a new species of Mollicutes (Lo et al., 1992). The mycoplasma has a tip-like structure and displays adhesion, haemadsorption, and cytadsorption, all pathological properties associated with in-vivo virulence. Using its tip, the mycoplasma penetrates mammalian cells called M-penetrans (Lo et al., 1992).

Wang, Shih, Grandenetti and Pierce (1992) reported the frequency of M-penetrans antibodies in serum from subjects with or without HIV. The research group tested (a) 234 HIV-positive patients with clinical AIDS; (b) 118 HIV-positive patients without AIDS (symptom-free blood donors); (c) 85 stored serum samples from homosexual patients dying of GRID (gay-related infectious disease), an early term for immunodeficiency or infectious diseases in homosexuals, with all 85 confirmed anti-HIV-positive by the Abbott Kit; (d) 336 patients attending sexually transmitted diseases (STD) clinics in San Bernardino, California (159 patients), Brooklyn, New York (79 patients), and Milwaukee, Wisconsin (98 patients); (e) 180 patients with various diseases often associated with immunological or autoimmune disorders (dialysis [44], systemic lupus erythematosus [30], rheumatoid arthritis [5], multiple sclerosis [20], lymphoma leukemia [32], other cancer [40], and paroxysmal nocturnal haemoglobinuria [9], with most cancer, lymphoma, or leukemia patients receiving chemotherapy and having low white cell counts; and (f) 384 HIV-negative healthy blood donors. M-penetrans were isolated from the urine of AIDS patients. In addition, M-pirum was provided by the National Institute of Allergy and Infectious Diseases along with samples from the American Type Culture Collection.

Wang et al. (1992) detected a more than 100 times higher frequency of antibodies to the mycoplasma in serum from HIV-1-infected patients with AIDS
(40%) than from HIV-negative control groups (0.3%). Serum from 20% of HIV-1-infected, symptom-free individuals also had M-penetrans specific antibodies, against P35 and P38, the two main lipid-associated membrane protein antigens of the organism. Patients attending STD clinics had a low frequency of antibody (0.9%). None of the 178 HIV-negative patients with different non-AIDS diseases, many associated with immune dysfunction and/or low white blood cell counts, tested positive for the antibodies. Therefore, it was concluded, “M-penetrans (apparently not a commensal and not a simple opportunist) is uniquely associated with HIV-1 infection and AIDS” (Wang et al., 1992, p. 1312). This represents an infection ratio of 10 (to the second power) percentage increase in HIV-infected patients versus a .3% chance of detection in HIV-negative patients. Wang’s group’s research neither supports nor rejects the theories debated by Fauci et al. (1993) or Duesberg (1992). It is solely an attempt to add supportive data as missing pieces to the HIV/AIDS investigative puzzle, in an attempt to isolate other infectious agents that might contribute to the clinical conditions causing AIDS.

An extensive body of clinical, epidemiological, and laboratory medical research data accumulated and published over the past 14 years (Pantaleo et al., 1993) is heavily skewed against the Duesberg drug-AIDS theory. Similar to that of Wang et al. (1992), another example of converse research data has been presented by Ascher, Sheppard, Winkelstein, and Vittinghoff (1993), medical researchers within the California Department of Health and Human Services at Berkeley. They have found no evidence to support Duesberg’s (1992) counter theory that drug use causes AIDS. Ascher et al. (1993) studied 1,034 single men between the ages of 25 and 54 in 1984. The men were randomly selected regardless of drug use, sexual preference, lifestyles, or HIV-infection. In a 96-month follow-up study, participants were questioned, and it was found that, of the 812 homosexual or bisexual men in the survey, 215 had developed AIDS. None of
the 215 heterosexual men had developed the disease, despite approximately equivalent proportions of drug use.

Ascher et al. (1993) had as their main purpose to identify associations of environmental and/or behavioral factors with the participants' medical conditions leading to the development of AIDS. The researchers concluded, "Not every failure to find such associations does not undermine the well-established causal relationship between HIV and AIDS, particularly as it relates to prevention strategies" (p. 108). Both HIV/AIDS theories continue to be debated and researched.

Studies concerning blood transfusions support the virus-AIDS theory. Although medical science has yet to produce a vaccine for AIDS or a cure, AIDS researchers effectively point to the fact that a successful blood test was developed early to prevent people from being HIV-infected through blood transfusions. The CDC reported that by mid-1994 AIDS cases that had been linked to HIV-infected blood transfusions totalled 6,888. A large part of this group had already been exposed to HIV prior to successful screening procedures. Since then, only 29 cases have been confirmed that attribute HIV infections to tainted blood transfusions, thus supporting the theory that HIV causes AIDS (Cohen, 1994b).

Additional support for the virus-AIDS theory concerning blood transfusions is evident in a 1990 study by the Transfusion Safety Study Group (TSSG) (Cohen, 1994b). The TSSG compared HIV-negative and HIV-positive recipients who had been given transfusions for similar diseases. Three years after transfusion, the mean CD4 count in 64 HIV-negative recipients was 850 (the normal adult range is 600 to 1200). In contrast, 111 HIV-positive recipients had an average of 375 CD4 count. As of May 1993, there were 37 confirmed AIDS cases in the HIV-positive group. In contrast, there had not been a single confirmed AIDS-defining illness in the HIV-negative group (Cohen, 1994b).
Darbyshire et al. (1994) studied the early standard treatment of prescribing AZT to HIV-infected individuals long before they developed clinical condition symptoms. The research found that there was no benefit in taking the drug AZT early. The Concorde trial principal researchers (Darbyshire, Aboulker, Swart and others, 1993) compared two groups of HIV-positive patients, one in which the drug zidovudine was initiated during the symptom-free period, and one group in which AZT use was withheld unless symptoms developed. The Concorde trial did not show any significant benefit from the immediate use of zidovudine in symptom-free individuals. There was no significant difference in the rates of progression to AIDS or death rates for the two groups. The Concorde study is the largest of any research aimed at evaluating the treatment of early HIV-infected individuals. The study followed HIV-infected patients for an average of 3 years.

Duesberg’s (1992) counter-theory group of medical researchers could arguably suggest that CD4 T-cell counts are not the best method to measure the disease severity related to HIV-infection progression within the body’s systems. Rowe (1993) discussed that the patients who progress (lose CD4 cells) but do not get clinical AIDS are an indication that what is important is CD4 cell function, not simply cell numbers present. In-vitro measures of CD4 function have been shown to be better predictors of the clinical course of AIDS than CD4 number, at all levels of CD4 counts. Other factors that influence infection include mucosal immunity and integrity, source of virus, and type of cell infected. Retrovirologists continue to seek potential points of intervention, and successful AIDS therapies will probably involve a combination approach, both to bolster the immune system and to attack the virus directly.

Maddox (1993b) explained that, apart from AIDS, the only human disease known to be caused by a retrovirus is adult T-cell leukemia, common in southwest Japan. It is now relevant to what medical texts say about the mechanism of viral
infection that some DNA viruses (hepatitis-B and Epstein-Barr) also appear to be integrated in the genome of the cells they affect, even if rarely.

The primary puzzle to Duesberg's (1992) medical group concerns the pathogenesis of AIDS, whereas it is difficult to recover from 'helper' T lymphocyte virus particles that might infect others. The researchers' main question is: What kind of a virus is it that seems not to affect its chief target? Maddox (1993a) stated that medical science now has the answer to why the HIV-infected cells remain alive and well in the lymph nodes of the body's immune system.

Organic chemical researchers from South Dakota State University, Baylor University Medical Center (Dallas, Texas), and the Southwest Foundation for Biomedical Research (San Antonio, Texas) have introduced a new chemical that inactivates HIV-1. At the 1993 spring meeting of the American Chemical Society in Denver, results from test tube studies show that the potential AIDS treatment was 99.9% effective against HIV-1 when compared to AZT, at a 90% effectiveness rate. The organic chemical is a yellow dye that penetrates the membranes of HIV-1 and normal cells. After being exposed to light, the chemical causes membrane proteins to bind together and incapacitates HIV-1 cell activity. Even if continuing studies of the organic chemical go well, researchers estimate that tests on humans are a minimum of 5 years from beginning.

Rice et al. (1993) demonstrated that drugs that eject zinc ions from "zinc-finger domains" disrupt the HIV-1-nucleocapsid (NC) protein and inhibit HIV infection in human cells. The HIV-1 nucleocapsid protein is involved in "packaging the RNA genome" of the virus. RNA genome are mediated by "zinc-finger domains in the NC protein" which, when disrupted, result in "non-infectious virions" (p. 473). The low cytotoxicity of these drugs suggests that they might be useful agents in AIDS chemotherapy.
Chemotherapy for HIV infection prolongs the disease-free interval in asymptomatic patients, improves the quality of life in symptomatic patients and delays death, according to Chow et al. (1993). Anti-HIV drugs (AZT, ddC, and ddl) work by inhibiting the viral enzyme through reverse transcriptase. Any measurable success generated by these accomplishments must be set against the confirmed knowledge that nucleoside chemotherapy only buys time for the AIDS patients. Levels of virus replication, as measured by (a) virus infectivity, (b) serum levels of HIV-antigens, or (c) viral RNA assayed by the polymerase chain reaction (PRC) in plasma or serum, are only diminished and are not completely suppressed by these drugs. Diseases related to HIV infection progress despite therapy. Chow concluded that this could be due to incomplete suppression of HIV infected cell’s chemistry, as well as the emergence of viral mutants with reduced susceptibility of these nucleoside drugs.

Chow et al. (1993) maintained that for an organism to survive a toxic challenge, resistant mutants must evolve. It is the agility of pathogens in generating such mutations that prompts the continual search for new insecticides, drugs for cancer chemotherapy and anti-microbial agents. Chow’s research group has put forth a strategy to turn this evolutionary survival mechanism against the HIV-infected cell’s chemistry by selecting certain combinations of mutation for drug resistance. Therefore, it may be possible to force the virus into inviability.

Among the many puzzles AIDS presents to medical research, one focus area stands out as particularly critical: The immune system collapses despite the fact that infected people often appear to have only minute amounts of HIV in their blood, if any is detectable at all. This point is repeatedly made by Peter Duesberg of the University of California at Berkeley, suggesting why HIV is not the cause of AIDS. But a medical research group made up of over 700 researchers met in
the spring of 1993 to present state-of-the-art overviews of how HIV behaves on
the molecular, cellular and epidemiological levels (Cohen, 1993a).

The message relates first and foremost to the new findings about high levels
of HIV within infected people. Researchers have long thought that the amount of
HIV that is present in cells within the blood stream remains low until late in the
disease’s progression. But those assumptions are now being discarded, largely
because of remarkably sensitive new uses of the revolutionary technique called
polymerase chain reaction (PCR), which amplifies small bits of DNA (Patterson
et al., 1993).

Patterson et al. (1993) have developed a new PCR test that gets around
previous limitations. In previous efforts to measure the amount of HIV within
infected people’s systems, researchers have relied on standard “quantitative PCR,”
which uses a technique to measure the amount of HIV in blood cells by extracting
the genetic material and adding strands of HIV DNA called “primers.” The
primers, which typically are radioactively labeled, bind to complementary HIV
DNA sequences in the cell. PCR then amplifies the selected sequence many times.
The strength of the radioactive signal in the amplified product is then measured.

With this standard assay, the amount of virus detected is directly linked to
the efficiency of the amplification process. To the degree that the amplification is
less than completely efficient, the amount of virus will be underestimated. Where
older techniques found HIV in as few as 1 in 10,000 blood cells, Patterson et al.
(1993) can routinely find HIV genetic material in as few as 1 in 10 blood cells.

Another powerful new viral assay was developed by George Shaw and his
colleagues at the University of Alabama at Birmingham. As reported in Science
(1993, March 19, p. 1749), Shaw’s group is testing a new technique called
Quantitative Competitive-PCR (QC-PCR). This technique appears to be as much
as 60,000 times more sensitive than culture-based plasma viremia assays at detecting HIV in plasma (Cohen, 1993a).

Yet, with the medical science research skewed in favor of a Virus-AIDS theory, the scientific community seems concerned about the effects of Duesberg’s (1992) message. Because the Duesberg phenomenon has not gone away, the editorial board of Science (1994) conducted a 3-month study involving interviews with 50 supporters and detractors, examined the AIDS literature, including Duesberg’s publications, and carried out correspondence and discussion with Duesberg (Cohen, 1994a).

The investigation reveals that, although the Berkeley virologist raises provocative questions, few medical science researchers find his basic contention that HIV is not the cause of AIDS persuasive. AIDS researchers argue that Duesberg’s arguments are “constructed by selective reading of the scientific literature, dismissing evidence that contradicts his theses, requiring impossibly definitive proof, and dismissing outright studies marked by inconsequential weakness” (Cohen, 1994a, p. 1643).

The main conclusions of Science’s investigation are that:

1. In hemophiliacs (the group Duesberg acknowledges provides the best test case for the HTV hypothesis), there is abundant evidence that HIV causes disease and death.

2. According to some AIDS researchers, HIV now fulfills the classic postulates of disease causation established by the German bacteriologist Robert Koch over a century ago known as “Koch’s postulates.”

3. The AIDS epidemic in Thailand, which Duesberg has cited as confirmation of his theories, seems instead to confirm the role of HIV.

4. AZT and illicit drugs, which Duesberg argues can cause AIDS, do not cause the immune deficiency characteristic of that disease (Cohen, 1994a).
The HIV-AIDS Hypothesis Continued

Meanwhile, following the well-documented virus-AIDS hypothesis, that once one is infected with HIV, ultimate disease characteristics depend on the presence of one or more of the 28 clinical conditions or co-factors. The presence of these various co-factors may explain why some individuals infected with HIV succumb to AIDS, or AIDS-related complex (ARC), whereas others remain symptom-free or asymptomatic for an undetermined period of time prior to acquiring additional clinical conditions and dying.

Fauci et al. (1993) and Haase et al. (1993) studied why HIV-positive individuals show traces of the virus within weeks of exposure and why those traces disappear from later blood tests, resulting in patients living up to more than 10 years without any apparent AIDS symptoms. A condition called viremia causes HIV-infected people to experience an initial increase of virus particles in their blood within weeks of exposure. Eventually, there is another explosion of viremia, which is followed by death from one or more of a combination of 28 clinical conditions (opportunistic infections) attributed to AIDS.

The latent or symptomless stage of HIV is not latent at all according to research conducted, by Fauci et al. (1993) and Haase et al. (1993) at the National Institute of Allergy and Infectious Diseases and the University of Minnesota. The virus is thriving in the lymph node system and insidiously eroding the body’s immune system toward a final and complete collapse. The study of Haase et al. (1993) confirmed the findings of Fauci et al. (1993), in which the AIDS virus can congregate in lymphoid organs, such as the tonsils, spleen, adenoids, and various lymph nodes throughout the body. Once established, the virus steadily infects key blood cells (lymphocytes called CD4 T-cells) and breaks down cells that filter out viruses.
The key to these latest findings is the “polymerase chain reaction” (PCR) technique, which can measure one cell to 10 HIV-infected cells present in a total of 100,000 uninfected cells. Fauci et al. (1993) used PCR to show that in asymptomatic HIV-infected patients there are many infected cells in the lymph nodes, more than in the blood stream, and that these lymph node cells are more likely to be virus-productive than cells in the blood. Haase et al. (1993) extended their earlier work, combining PCR and in-situ-hybridization with autoradiography to demonstrate that high fractions of cells (approximately 25%) in germinal centers of lymph nodes are infected, and that these cells “tend not to be expressing viral RNA” (p. 359). The cells with viral DNA and no viral RNA can be called “latently (HIV) infected” (p. 360) cells.

Fauci et al. (1993) and Haase et al. (1993) conclude from their research that the primary key to controlling HIV will be to find drugs that patients can start taking very early after initial infection and before the virus is able to establish reservoirs of infection in the body’s lymph node system. Temin and Bolognesi (1993) support the research of Fauci et al. and Haase et al. agreeing that secondary lymphoid organs are “solidly infected with HIV.” Both researchers also point out that “virus particles are carried, probably passively, by follicular dendritic cells” but in a form that is likely to be infectious for other HIV-target cells, especially T-cells which circulate freely through these organs (Temin & Bolognesi, 1993, p. 292). Currently, AIDS drugs are toxic and trigger viral resistance in the body. As a result the drugs are not given for unlimited periods and not until the body’s CD4 T-cell count has dropped below normal range.

Three additional theory-changing studies supporting Fauci et al. (1993) and Haase et al. (1993) were conducted by Coffin (1995), Shaw et al. (1995), and Ho et al. (1995). These particular studies bring new understanding about the HIV’s replication cycles of infection. For many years researchers believed that a finite
pool of infected immune cells pumped a steady stream of fresh HIV into the body. It was also thought that many immune cells carried dormant virus which were triggered into production by new infections. The new research shows HIV to be far more active throughout the entire infection process than once believed.

HIV is now thought to be constantly infecting new batches of immune cells. At first, the immune system manages to keep up with the virus's cell production. It is for this reason that most HIV-infected individuals stay healthy through the initial years of infection. But in this period, the virus is multiplying at an extremely high rate inside the body's systems. The immune system is working at an equally matching rate, producing between 1 and 2 billion immune cells a day to replace the dead ones. The body cannot keep up the required pace to maintain good health, which causes the immune cell production to eventually slow down. As a result, the HIV-infected individual is deprived of the needed protection to successfully fight off invading bacteria and diseases that increasingly attack the immune system. The immune system collapses, resulting in eventual death of the HIV-infected individual (Shaw et al., 1995; Lo et al., 1995).

Although the outcome is grim, medical researchers are glad to hear that there is no major pool of dormant HIV, making it difficult to locate and effectively kill. Also disproved is the theory that the immune system kills off most of its own T-cells. Instead, the virus is multiplying rapidly in cells, which makes it a much easier target to isolate and attack effectively with anti-HIV drugs. Unfortunately, HIV mutates rapidly, and it quickly becomes resistant to drugs and the design of new therapeutic strategies (Coffin, 1995).

Nightingale et al. (1993) cites a new FDA-approved antibiotic-anti-HIV drug called Rifabutin, which has been found to be effective in warding off a life-threatening bacterial infection called mycobacterium avium complex (MAC). MAC is common in the clinical stages of AIDS, resulting in drastic weight lost,
anemia, and an inability to absorb nutrients. MAC bacteria are common in soil and water, but rarely harm people with healthy immune systems.

The FDA (1994) approved a fourth major drug, called Stauvdine or D4T, for the treatment of HIV infection and AIDS. The drug works in much the same way as the other leading treatments for the disease--Ziduvudine (AZT), didanosine (ddl), and Zalcitabine (ddC). The drugs belong to the family of "nucleoside analogs," which are believed to inhibit the ability of HIV to reproduce by tricking the virus into using the drug to build its DNA instead of the body's own natural components. The drugs also interfere with the production of enzymes that the virus needs in order to grow. D4T was approved for use in adults who no longer respond to, or are unable to tolerate, other nucleoside analogs (Staff, 1994).

Kovacs et al. (1995) have successfully used a natural protein called interleukin 2 to regulate the body's immune defenses. It successfully worked in 100 patients who were HIV-infected patients who had not yet developed AIDS, and who had CD4 T-cells which were not yet depleted. The new approach carries a serious side effect which mimics a severe case of the flu. Researchers have not tested it long enough to be able to prove that it actually helps HIV-infected patients stay healthy longer.

**HIV/AIDS Research on the Right Path**

To date, most research into HIV and AIDS treatment has had one of two goals: (a) trying to block reproduction of HIV, as with the antiviral drugs AZT, ddl and ddC; or (b) preventing and treating the opportunistic infections, such as pneumonia, that kill most people with AIDS once their immune systems are weakened below the 200 CD4 T-cell count level. By the end of 1993 most research had focused on HIV and its ability to harm the CD4 T-cell components of the human immune system.
Additional research is beginning to focus on the virus’ ability to trick the immune system, setting it on a path of self-destruction that may continue even if the virus is later eliminated. Dr. Cecil Fox, a cellular biologist who is president of the Molecular Histology Laboratories, Inc., agrees with many imminent medical scientists who are beginning to conclude that actual damage is done, not continually by HIV, but by an immune system that goes awry, attacking itself and other parts of the body as a result of HIV infection within the body’s systems.

Many pieces of the HIV puzzle remain obscure, many details of the process are continually debated, and many medical researchers, including Fauci, Gallo, and Haase remain guarded in their optimism. But in a 1993 fall meeting of 500 AIDS scientists from around the world, it was clear that similar conclusions about the way HIV causes damage to the body’s immune system and the need to focus on new directions for treatments was shared and agreed upon by those present. It was determined that any new direction in research would take at least 2 years to show any useful results (Mann & Tarantola, 1993). The group’s prediction held true, with the theory changing and advancing research conducted by Fauci et al. (1993) and Haase et al. (1993), and later supported by the research conducted by Coffin (1995), Shaw et al. (1995), and Ho et al. (1995).

Public Health’s Response to HIV

The United States Public Health Services has recognized the unique concerns of those who provide health care services for people with HIV-related conditions. The Centers for Disease Control (CDC) provide training in HIV epidemiology, prevention, and control for a wide range of health care practitioners. The National Institute of Health (NIH) also provides training to health care professionals, emphasizing research updates in the fields of virology, immunology, vaccine development, and therapeutics. Equally important is the
interactive spirit of professional organizations such as the American Medical Association (AMA), American Osteopathic Association (AOA), American Academy of Pediatrics (AAP), and the American College Health Association (ACHA).

Two focus areas concerning public health objectives within intercollegiate athletics in higher education are (a) health prevention and (b) health promotion, as targeted by the United States Department of Health and Human Services and the United States Public Health Services (1990) in a nationally developed public health document titled Healthy People 2000. The document serves as a statement of national opportunities facilitated by the federal government for development through a national effort and not intended as a statement of federal standards or requirements. The national health document is a product of a national effort involving 22 expert working groups, a consortium that grew to include approximately 300 national organizations including all state health departments and the Institute of Medicine of the National Academy of Sciences. The Academy helped the USPHS to manage the consortium, convene regional and national hearings, and receive testimony from more than 750 individuals and organizations through extensive public review and comment involving over 10,000 people. Twenty-two national health promotion and disease prevention objectives were the revised and refined product of the national health document.

Statistical, Legal, and Nonfunding Impact: HIV, AIDS, and STD

Wright (1992) reported that one in 100 students coming to the University of Texas health center is HIV-infected. The CDC (1991) reported that 152,153 people have died from AIDS since tracking began in 1981 (up 18% over 1990). More than 289,000 cases of AIDS had been diagnosed by the end of 1992, with 255,000 new cases of AIDS expected by the CDC through 1995. The AIDS cases confirmed by the CDC in 1994 totaled 80,691. It has been estimated by the
USDHHS that approximately 38,000 HIV-infected individuals will die in 1995. Approximately 1.5 million Americans are HIV infected, and the annual cost of treating HIV victims is projected at $15.2 billion by 1995.

Sexually transmitted diseases (STDs) infect 3 million adolescents annually, confirmed by the United States Department of Health and Human Services’ (USDHHS) 1991 annual report focusing on HIV and STD infections among young people. The CDC relates that 63% of all STD cases occur among persons less than 25 years of age (McDonnell, 1992). There are over 20 dangerous STD infections occurring among our youth today. HIV infection is the only STD with no medically preventive solution, such as an effective vaccine. Approximately 40,000 confirmed HIV infection cases are reported in the United States annually. The actual number of HIV infections among Americans remains unknown because there is no established method for accurately recording infections as they occur. The CDC (1991) reported syphilis at a 40-year high with 134,000 new infections per year, 1.3 million new gonorrhea confirmations, 250,000 acute and chronic forms of hepatitis B virus (HBV infection up 37% from 1979 to 1989), and 500,000 new cases of herpes annually.

The Alan Guttmacher Institute’s report (Johnston, 1993) on the incidence of STDs confirmed the CDC’s 1991 statistics. The incidence of gonorrhea rose from 600,000 cases in 1970 to 1 million cases in 1975. The number decreased to about 700,000 by 1990, with the current rate of infection still above that of other major industrialized nations. Syphilis (like gonorrhea) is caused by a bacterial infection and has fluctuated from 91,000 new cases in 1970, to 69,000 cases in 1980, to 134,000 confirmed cases in 1990. Chlamydia, a bacterial infection, is reported to infect approximately 4 million people annually. Trichomoniasis, a parasitic infection, infects 3 million people a year. Genital herpes produces from 250,000 to 500,000 new cases annually, with 31 million Americans carrying the virus.
Specifically regarding the herpes virus, Robert Gallo (1993) of the National Cancer Institute has found that a herpes virus called HHV-7 (not yet known to cause any specific disease) infects the same cells as HIV and uses the same molecular structure to penetrate host cells. The critical implication reveals that the virus might be utilized to block entry of HIV by using parts of HHV-7 as blocking agents, a strategy that should ensure safety even if HHV-7 is later linked to a specific disease (Painter, 1993b).

Additionally, the hepatitis B virus (750,000 cases annually) is carried by approximately 1.5 million individuals in the nation. There is no cure for this disease, but antiviral drugs are used to alleviate new outbreaks in the United States. HBV accounts for 500,000 to 1 million new cases each year.

Approximately 75% of annually allotted federal funding for the prevention and control of STDs focus on the STDs of syphilis and gonorrhea, which represents only 10% of all confirmed STD infection cases. Each year over 1 million American women suffer pelvic infections, 150,000 women become infertile, and 45,000 women have life-threatening tubal pregnancies resulting from STDs. Another 45,000 women die annually of cervical cancer, which is directly linked with various types of the sexually transmitted disease called human papillomavirus (CDC, 1991). Johnston (1993) reported that all the STDs, including HIV, affect 51 million individuals in the United States, representing one in five Americans.

**HIV and AIDS: Nonfunding Dilemma**

Presently, significant discrepancies exist in HIV and AIDS funding sources among industrialized nations and developing countries, according to the Harvard HIV/AIDS study (1992). In 1991 about $2.70 was spent per person in North America, $1.18 in Europe, $0.07 per person in sub-Saharan Africa, and $0.03 per person in Latin America.
Painter (1993a) reports that half of the new HIV infections expected to appear in developing countries in the 1990s could be prevented for less than $3 billion annually. "We’ve got to find this money . . . if we don’t . . . we’re going to pay a lot more later on," stated Merson (1993, p. 1216), director of WHO’s Global Programme on AIDS (GPA). A WHO study (1993) concluded that providing developing countries with comprehensive AIDS prevention programs (including condom promotion, treatment of STDs, and needle exchange programs for drug users) would cost $1.5 billion to $2.9 billion annually.

WHO and World Bank officials called for a tenfold global increase (to $2.5 billion annually) in spending to combat the AIDS epidemic and to save approximately 10 million lives by the end of the 1990s. WHO estimates that $120 million was spent in 1992 on AIDS prevention in the developing world. Merson (1993) explained where and why money should be effectively spent:

1. In cutting new adult infections in the 1990s from 20 million to 10 million, saving 4 million lives in Africa, 4 million lives in Asia, and 1 million lives in Latin America;

2. In saving approximately $90 billion in direct health costs and indirect costs, such as lost wages and worker productivity; and

3. For $2.5 billion, the amount would be "scarcely 1/20th of the $49 billion spent on Operation Desert Storm. Moreover, the money would add just 1% to the amount now spent on health in the developing world" (Painter, 1993a, pp. 1A, 1D).

The GPA’s (WHO, 1993) budget was severely hit in early 1991 by the Gulf War. Out of a planned annual income of $100 million, only $17.9 million had been received from contributing countries during the first 6 months. The total eventually reached $82 million, funding 135 research projects (45% based in Africa and Asia). The main research areas have been vaccine development,
clinical research and drug development, diagnostics, and epidemiological surveys. As of December 1991, 12 candidate vaccines were under investigation. Although HIV exhibits a high degree of genetic variability, an effective vaccine is not expected for at least another 10 years, pushing the likelihood beyond the year 2003 (Horton, 1993).

**HIV and AIDS: Projected Costs Nationally**

The Congressional Budget Office (CBO, 1992) has charted national health care cost through the year 2000. The CBO forecasts that expenditures will rise from $8 billion in 1992 to $1.7 trillion by the year 2000. The nation’s health care share of gross domestic product (GDP) will increase from 12% to 18%. The average annual growth of the GDP is forecasted at 5.8% during the 1992-2000 period, along with health care spending projected at 9.6%.

The CBO (1992) analysis contends that health care spending from particular illnesses and treatments are minor factors in a total system that is devoted to the development of advanced medical technology and generally insulates physicians against cost considerations. Although the cost of HIV and AIDS treatments has fostered much concern, the CBO contends that these diseases remain very small portions of the national health care budget, representing only 1.3% or $10.3 billion in 1992. The projection for 1995 is $15.2 billion or 1.4% (CBO, 1992).

In comparison to the U.S. budget allocation to fight HIV and AIDS, Canada has increased its 1993 AIDS budget 13%. The people’s request was for $55.35 million, but $42.2 million was granted per year in a 5-year program to find answers through AIDS research and education. Other medical research budgets have been frozen, resulting in increased discontent within the biomedical community over the disproportionate share of federal assistance given to AIDS research and education (Kondro, 1993).
Meanwhile, HIV infection and AIDS are spreading and growing out of control globally, including previously untouched areas of the world, such as Paraguay, Greenland, and the South Pacific Island Nations of Fiji, Papua New Guinea, and Samoa. A recent HIV/AIDS study, citing Harvard's Jonathan Mann (1992), of the Harvard School of Public Health and Harvard's International AIDS center, observed, "The question today is not if HIV will come, but only when" (p.22). The HIV/AIDS study, prepared by Mann's team of 40 authorities, reported that up to 130 million youth and adults around the world will be HIV infected by the year 2000, threefold the World Health Organization's (1992c) projections. This represents a projected HIV infection rate of one every 2.4 seconds.

Currently, the United States is one of only two industrial countries without a formal national public health and education plan for dealing with the HIV epidemic.

**HIV/AIDS Vaccine Testing**

With regards to large-scale HIV/AIDS vaccine testing on human subjects, a controversial plan to conduct clinical trials of a single therapeutic AIDS vaccine has been modified to compare the efficacy of three vaccines. The trials will be conducted by the NIH instead of the United States Army.

The United States Department of Defense and the USDHHS agreed in April 1992 to spend $23 million to test the efficacy of three potential vaccines on 9,000 people after the Army had intended to proceed with a single trial of VaxSyn. The drug's manufacturer successfully lobbied Congress to appropriate $20 million for the trial. NIH agreed to provide the additional $3 million for the expanded trials. The $23 million trial involves giving each vaccine to 3,000 people against the Army's original plan to test VaxSyn on 10,000 people. Either approach would represent the largest clinical trials to date regarding developed therapeutic vaccines.
to retard the onset of full-blown AIDS in patients who are HIV-positive (Macilwain, 1993). The trials were later placed on hold pending further review.

**Reorganization of AIDS Research**

The NIH Revitalization Act of 1993 expanded the importance of the Office of AIDS Research (OAR), and upgraded its directorship to a full-time position. The first director was Anthony Fauci, M.D., who also served as director of the National Institute of Allergy and Infectious Diseases (NIAID). The OAR is a part of the NIH under the control of the USDHHS. The new director of OAR will be responsible to the NIH director. The OAR's task will be to evaluate the AIDS research that is currently conducted by 21 of the institute's centers and divisions (ICDs) within the NIH, both intramural (in Bethesda, Maryland) and extramural (most NIH dollars go to universities via grants), and to identify redundancies and deficiencies in current programs. OAR will then develop a strategic plan, which includes work in pathogenesis and basic science, natural history and epidemiology, vaccine development, clinical research, and social and behavioral research. Within a planned 2 year period, the ICDs will be moved toward collaboration whenever duplicated efforts waste limited resources. NIH currently spends approximately 10% of its funds on AIDS-related research. The strategic plan allows for OAR administrative authority over funds transferred each year to the ICDs (Rowe, 1993a).

**Errors in HIV Predictions**

Predicting the transmission rate of HIV infection has become a global obsession for very good reason regarding the infection's mortality rate within industrialized and Third World countries and, especially, with respect to predictions for heterosexual transmissions. Stewart (1993) is well documented for his view that the risk of infection to heterosexuals in Western countries is negligible. The confidence intervals based upon any quantitative estimates are so
wide as to make targeted public health education, prevention, and protection campaigns a matter of educated guesswork. However, is epidemiological modeling any more accurate?

The advantages and disadvantages of the modeling approach to HIV-transmission predications are exemplified in the frequently cited work of Anderson and May (1992). They focused on the basic reproductive rate of the virus (Ro), which they define as the number of infections produced by one infected person in an almost totally susceptible population. For the HIV infection to be maintained in a social group, (Ro) must be greater than one. If (Ro) is below one, the infection will die out. (Ro) depends on two main variables: (a) the probability of HIV transmission per physical relationship and (b) the number of new sexual partners with whom an HIV-infected individual has physical contact.

In the developing world, where heterosexual intercourse is the main method of HIV transmission ("Heterosexual," 1993), the male/female ratio is 1:5. By contrast, the rate of HIV infections in the United Kingdom between heterosexuals remains rare (only 347 heterosexual men and women developed AIDS between March 1992 and February 1993). Therefore, critics have suggested that the risk to the total population can be discounted. The key factor in any projection is neither a fixed mathematical fraction that yields (Ro > 1), nor "spurious geographical reassurance," but the most nebulous variable is sexual behavior.

Global figures are similarly uncertain, such as the predictions of WHO and the Harvard Global AIDS Policy Coalition. What may reveal these predictions to be accurate in the next few years depends upon HIV transmission educational efforts in global areas, such as India, Central and South America, Africa, Thailand, Burma, Laos, Japan, China, Malaysia, and the Philippines along with other South Pacific Rim islands.
HIV and AIDS in America: A Social and Cultural Dilemma

Beshasov and Gardiner (1993) predicted in mid-1993 that during that year approximately 10 young Americans will have engaged in 26 million acts of sexual interaction, resulting in 1 million pregnancies; 406,000 abortions; 134,000 miscarriages; and 490,000 births, of which 313,000 (64%) of them will have been illegitimate births. William Bennett classified this cultural phenomenon in young Americans as “social regression,” which is directly related to the lack of personal responsibility for one’s own behavior (Geyer, 1993).

Using the 1960 economic index model from the United States Bureau of the Census’ annual index of leading economic indicators, Bennett has developed an index of leading cultural indicators comprised of 19 behavioral trends within the American society. These economic and cultural indexes assess the overall health of the American economy and behavioral issues within American culture. The parallels between the two indexes give reason for educators on all academic levels to become interactive, cooperative, critical-thinking analysts, focusing on workable and applicable intervention solutions in education (Geyer, 1993).

Barta (1977) has written about the “law of social cycle,” representing his ironclad law of social evolution that has existed in human history over the past 10,000 years. Since history follows certain social and economical patterns, it is possible to forecast precisely where a society is heading. It is this law of social cycle that formed the basis of the predictions Barta made in 1977 regarding the downfall of communism and capitalism. Barta’s work was laughed at by intellectuals until the recent downfall of the Berlin Wall and communism in the Soviet Union and eastern Europe.
Barta’s (1977) writing can provide educators with a basic historical understanding of where American culture and society are heading, as we enter the 21st century as a diverse people. In the past 10,000 years of human history, the law of social cycle has never failed to conclude its cycle in an orderly manner through all of the law’s social cycle processes.

Since 1960, the population of the United States has increased 41%, the gross domestic product has nearly tripled, and total social spending by all levels of government has risen from $143.7 billion to $787 billion annually. Inflation-adjusted spending on education has increased 225%. During the same 30-year period, there has been a 560% increase in violent crime; more than a 400% increase in illegitimate births; a quadrupling in divorce rates; a tripling of the percentage of children in single-parent homes; more than a 200% increase in the teenage suicide rate; and a 80 point decrease in Scholastic Aptitude Test scores (Geyer, 1993). Bennett concedes that over the last 3 decades, we have experienced substantial social regression as a nation of people and that “today the forces of social decomposition are challenging and overtaking the forces of social composition” (Geyer, 1993, p.11A). Concerning the 560% increase in violent crimes C. Everett Koop has argued that public health is a “health” emergency that includes public safety and whatever is needed in a national effort to protect all Americans who are unprotected from violent behaviors in our society.

During the summer of 1992, the leaders of the Southern Baptist Convention’s Sunday School Board (SBCSSB) collected qualitative data during regional church-related youth camps. A majority of the attending youths were active church members or leaders in conservative churches, along with a few “unchurched” young people. After the survey, the SBCSSB released an information packet comprising of 12 folders containing unusually blunt
information, with units on abortion, drugs, HIV/AIDS, STDs, suicide, the occult, and the mass media. The analyzed survey data revealed the following:

1. Twenty-two percent of the youths had witnessed violence in their homes. Fathers committed most of the violent acts, with brothers a close second;
2. Twenty-seven percent said they had been involved in a physical attack on another person, while 22% said they had been attacked;
3. Nineteen percent said they had considered suicide;
4. One in five (20%) said they had engaged in sexual intercourse;
5. Nearly 60% stated they had experimented with alcohol by age 13. In addition, 27% said they had tried drugs by age 15;
6. Approximately 30% had carried weapons;
7. Nine percent experienced some kind of sexual violence or abuse; and
8. Four percent said they had been raped.

Church leaders stated that 35 years ago the big issues were dancing, movies, and the use of alcohol and cigarettes. Today's youths face the issues of violence (in the home and away), Satanism, HIV/AIDS and other STDs, and suicide. Many youths may feel that they are "headed nowhere in life" and that society should provide them with reinforcement other than the routine trips to area shopping malls and questionable television programming (Staff, 1993b). Can peer-leader interventions be effectively utilized for increased involvement in various community and public service activities? Can these efforts instill a sense of satisfaction, pride, self-worth, and self-esteem, along with increased awareness and knowledge of direct and indirect socioenvironmental affects that work together in restructuring an enhanced personal and cultural value system?

Regarding the quadrupling of divorce rates and its impact, the divorce explosion that has transformed American families over the past 3 decades has had a long-lasting behavioral effect upon young people. A federally funded study
conducted by Child Trends, Inc. (1993) discovered turbulence in the lives of young adults whose parents had divorced as long ago as 2 decades earlier. Among young people 18 and 22 years of age and who are from disrupted families, 65% had poor relationships with their fathers; 30% had poor relationships with their mothers; 27% had dropped out of high school; 41% had received psychological counseling at some point; and 19% had significant behavioral disorder problems. Young adults were nearly twice as likely to have personal problems compared to young adults who grew up in intact family units consisting of both parents. Other major points of emphasis regarding the impact of divorce are as follows:

1. Children with divorced parents were 73% more likely to suffer from various forms of mental depression after growing up compared to the general population.

2. Children are nearly twice as likely to be living in poverty after a divorce or extended separation by parents.

3. Characteristics of children whose parents divorce include major behavioral and mental disorders stemming from anger, frustration, and guilt; declining school performance; and trouble getting along with parents and peers (anti-social behavior).

According to Grold (1993) of the Mental Health Referral Services in Southern California, in any 6-month period, nearly 36 million adults and 12 million children are afflicted with mental illness, varying in severity. More than 6,000 older Americans commit suicide annually, and suicide is the second-leading cause of death among children ages 15 to 19 years. The direct cost of mental illness accounts for more than $55 billion annually; and the indirect cost, including loss of employment, reduced productivity, accidents, substance-abuse programs, and social welfare programs, increases the amount to approximately $273 billion a year (Grold, 1993).
If drug use among young Americans is to be included as another social regression factor of behavioral traits, a study by Johnston (1993) at the University of Michigan and funded ($3 million) by USDHHS' National Institute on Drug Abuse, focused on the results of a nationwide survey of 50,000 8th, 10th, and 12th-grade students, showing statistically significant increases (6.2% to 7.2%) from 1991 over 1992 in the use of alcohol (8th graders up 4%), marijuana, cocaine, crack, LSD, other hallucinogens, stimulants, and inhalants. The survey also found that the use of LSD among high school seniors had reached its highest level since 1985. However, the use of illicit drugs by seniors continues to decline overall (Johnston, 1993).

HIV Risk and Sexual Lifestyles

Sexual behavior is another cultural factor to be understood in the fight against HIV and AIDS transmission. In a large study concerning sexual behavior in men between the ages of 20 and 39, Billy (1993) surveyed 3,321 males in the United States. This study provides new national statistics since the respected Kinsey Report of 1968. Billy (1993) looked for behaviors and attitudes that might influence the spread of AIDS, HIV, and other STDs. Men have heard the words concerning safer sexual behavior, but the study showed that most men are not practicing what educators are teaching. The study concluded the following:

1. On average, black men became sexually active at the age of 15; white males at the age of 17. The average number of sexual partners was 7.3 (6.6 for white males; 10.2 for black males).

2. Only 39% of sexually active single men (45% of those under 30 and 28% between the ages of 30 and 39) used a condom in the month preceding the survey;

3. More than half of gay men (having at least two sexual partners that month) used condoms.
4. Also, men who had a “one-night stand” that month and single black men under 30 years of age used condoms.

5. But 35% of men who had anal sex that month and 38% of those men who had a “one-night stand” used condoms in the previous 18 months.

6. Three of four men agree that using condoms “shows you are a caring person,” but the same number say condoms reduce sensation and 27% say condoms are an embarrassment to purchase for personal use.

7. Twelve percent of single men are virgins but only 26% of non-virgins had sex (at least three times) in the month before the survey; and 41% did not have sex at all. Twenty-three percent of men had more than 20 partners in their lifetimes; 18% had at least four sexual partners the last 18 months prior to the survey.

8. Married men had sexual relations totaling five times a month and are not having extra-marital sexual relationships. Six percent did not have sex in the month before the survey; 26% had sex at least 10 times.

9. Anal sexual acts were conducted by 20% but practiced regularly by fewer men. Only half of those men who ever had anal sex had conducted the act in the 18 months prior to the survey, while 10% conducted the act in the previous month.

10. Anal sex is mainly a heterosexual activity with 90% of the men conducting the sexual act with a woman, the first time, and 50% conducted it with just one person; 20% with more than four individuals. This type of sexual behavior by men could put them and their sexual partners at high risk for acquiring HIV, therefore, leaving the body’s systems susceptible to the multiple clinical conditions for AIDS (Billy, 1993).

Billy’s (1993) new findings are similar to survey results conducted in each of the last 4 years by researchers at the University of Chicago (Smith, General
Social Survey, 1989). Billy’s results are also consistent with recently published reports from Britain, France, and Denmark.

A respected HIV and AIDS expert, Anthony Fauci et al. (1993) revealed that although condom use does not entirely eliminate the risk of HIV transmission, consistent and correct use of latex condoms is effective for prevention of HIV infection and other STDs. Latex condoms provide an excellent barrier against HIV passage in the laboratory. However, condoms should not be depended on for prevention of HIV infection unless they are used correctly and consistently. Breakage or leakage can occur, especially with improper use. Also, vaseline or mineral oil-based lubricants may erode latex. If latex condoms from a reliable manufacturer are treated properly and used correctly during each sexual encounter, they can provide an effective (although not absolute) method of protection against transmission of HIV and other STDs.

Weller (1993), associate professor of Preventive Medicine and Community Health at the University of Texas Medical Branch (Galveston), indicated that condoms are less effective at preventing transmissions of HIV than they are at preventing pregnancy. Weller (1993) estimated that condoms stop HIV only 69% of the time. The study is the first to estimate the actual degree of protection from HIV provided by condom use. The researcher analyzed data from 11 studies in the United States and Europe of 593 uninfected heterosexual partners who were infected with HIV through tainted blood transfusions, needle use, bisexuality, or other causes. The analyzed studies questioned whether the couples used condoms regularly, but did not take into account whether spermicide was used. The critical factors were the clinical state of the infection; whether anal intercourse, which increases the risk of infection, was involved; and whether there had been a history of other sexually transmitted diseases among the study’s participants.
An expansive study by Forrest et al. (1988) supported the increasing STD statistics. The study represented 8,450 American women, surveying sexual behavior among women 15 to 44 years old. It found that 62% of sexually active adolescents had two or more sexual partners, compared to 39% in the 1970s. Of sexually active women under 20 years of age, the study revealed that 30% had 4 or more sexual partners, and 5% had 10 or more partners. Among girls in the youngest age group, 15 to 17 years of age, 4% had more than 10 sexual partners.

The Forrest et al. (1988) study showed that, about 70% of the sexually active women from 15 to 17 years of age moved on to a second partner within 18 months of their last intercourse. Women 18 and 19 years of age did not move to a second partner quite as quickly, with only 50% reported having had one partner 18 months after their first intercourse. The study estimated that 6.4 million American women 15 to 44 years have direct contact with more than 1 sexual partner, and that an additional 5.5 million to 11 million women are directly exposed to multiple partners because their male partner had more than 1 partner during the year. Forrest et al. (1988) warned, "We need to be concerned not only about preventing unintended pregnancy, but about guarding against STDs such as HIV and gonorrhea" (p.11). With 16.4% of the United States population infected with STDs (25 million Americans), anyone can rationally conclude that increased HIV infections are a reality. This realization gives rationale for focused concern among educators on all academic levels and within all disciplines.

The above factors, associated with William Bennett’s leading indicators of cultural behaviors, are a few interconnected examples that could explain why young people make poor personal health choice decisions as adolescents and young adults. Another heatedly debated interrelation can possibly be linked to human behavioral genetics. The theoretical question in human behavior genetics still remains: Which is the most likely genetic pattern in a wide array of
pathological and normal behaviors—single genes of large effect, or two or more genes interacting with each other? Additionally, the largest study ever to show a major role for genes in male homosexuality was published in 1991, and a study on lesbians in 1993 reported similar genetic-related results. Genetic explanations have come to be dominant in major mental illness, schizophrenia, bipolar disorder, Alzheimer’s disease, anxiety disorders, and autism research studies (Powledge, 1993).

Unfortunately, gaining insight into what is happening in our culture does not automatically translate into knowing what to do about improving the index of leading cultural indicators within the scope of higher education and/or within the intercollegiate athletics setting. Student athletes are no exception to the norm. Statistics revealed by DiClemente (1990), similar to Strunin and Hingson’s (1987) study, show cause for establishing new agendas, new avenues, and new educational awareness approaches to the psychological and critical-thinking processes of the mind regarding individual attitude and behavior modifications toward HIV infection and transmission prevention. It could be concluded that our youth and young adult populations have yet to develop the required personal health convictions regarding HIV and STD infections, or that they are not conducting themselves in a responsible manner regarding specific risk behaviors that can lead to transmitted HIV and other STD infections.

A British survey and a French survey are the first large-scale investigations to be conducted regarding HIV risk. Johnson, Wadsworth, Wellings, Bradshaw, and Field (1992) surveyed the sexual attitudes and lifestyles of 18,876 men and women aged 16 to 59 living in England, Wales, and Scotland. The purposes were to provide baseline estimates for use by anyone concerned with sexual behavior and health and reproduction; to contribute to the understanding of the
epidemiology of HIV and STDs; to assess temporal changes in behavior; and to assist in the design of prevention strategies.

Respondents reported whether or not they had undergone HIV testing in the past 5 years and whether the testing was in connection with blood donation, pregnancy, incurance, travel, or other unspecified reasons. Overall, more than 13% of the sample reported they had undergone HIV testing. The most common reason given was blood donation (7.5% men, 6.2% women), but over 4% of men and nearly 3% of women had a test for unspecified reasons. Rates in testing declined in those aged 45 or older.

More than 1 in 5 men (and 1 in 4 women) with five or more heterosexual partners in the past 5 years reported having an HIV test, and 1 in 10 had done so for unspecified reasons. Among men with homosexual partners in the past 5 years, the proportion rose to more than 4 out of 10, with more than 1 in 4 seeking testing for other unspecified reasons. For those injecting non-prescribed drugs, 50% had been tested. These rates significantly exceed those of the general population of high-risk behavior people who have chosen to undertake HIV testing. The study indicates that many people with high-risk of HIV infection have perceived the risk and have already undergone HIV antibody testing but that half remain untested. This gives an indication regarding the level of undiagnosed HIV-infected people in the general population (Johnson et al., 1992).

In regards to French HIV-risk lifestyles, Nightingale et al. (1992) surveyed 20,055 people ages 18 to 69 years old. Findings showed a relatively high level of condom use in young people and in those most exposed to the risk of infection from STDs or by AIDS. However, a considerable proportion of these subjects still do not use condoms, especially with new partners. The study’s purpose was to describe the characteristics of the subjects in order to understand what psychological and sociological mechanisms were operating. These include social
norms relating to sexual behavior; influence of the family environment; strategies for finding sexual partners; verbal communications with a new sexual partner; and attitudes about body fluids.

According to Nightingale et al. (1992), the rate of STD transmission and AIDS in a given population depends on many behavioral variables: (a) the rate of acquisition of new partners; (b) the type of sexual practice; (c) sexual behavior patterns, such as age-dependent partner choice and mixing between populations with differential disease prevalence. The level of protection currently used was found to be insufficient to halt the continued transmission of the HIV epidemic.

Until the early 1990s, sexual behavior remained one of the few areas in which there was no systematic information available from large-group population samples in developed countries. The knowledge provided by cross-sectional surveys, both quantitative and qualitative and similar to the British and French investigations, is essential to optimize strategies for prevention of HIV/STDs and AIDS-related diseases and to make it possible to predict the transmission rate of the AIDS epidemic more accurately.

HIV Research/AIDS Programs: Funding and Court Rulings

Generally speaking, Americans support adequate HIV/AIDS research, and they also support the need for functional health care processes. But federal legislative funding and judicial decisions have shown otherwise. The United States Congress passed the Ryan White Care Act (1990) to directly assist cities and states hardest hit by the AIDS epidemic nationwide. The act, named for an Indiana boy who died of AIDS, called for spending nearly $5 billion over a 5 year period, or about $885 million annually.

was to be used for care and assistance to people who become HIV-positive or develop AIDS. All HIV/AIDS funding proposals fall short of the totals called for through the legislated 1990 Ryan White Care Act (Thomas, 1992). The act provides care and assistance to 200,000 people who are HIV-infected or have AIDS and who have inadequate or no medical coverage. The United States Congress will debate the merits for continuing or discontinuing the Ryan White Care Act during the 1995 fall session.

Healy (1992), as former director of the National Institutes of Health (NIH), worked to better define the essence of the NIH, the federal agency that supports the vast majority of medical research in the United States. To date, approximately 98,000 biomedical scientists can apply for HIV/AIDS research grant funding through the NIH. Healy (1992) focused medical research priorities established to serve NIH’s mission, improving the health of Americans, instead of emphasizing funding support for medical scientists’ individual research projects. The harsh reality for HIV/AIDS research funding is this: (a) the NIH requested $1.2 billion for 1993, (b) President Bush’s administration allocated in his last proposed budget $873 million, and (c) Congress was expected to fund somewhere between $275 and $325 million of the NIH’s original $1.2 billion medical research budget.

Comparatively, the diseases attributed to HIV/AIDS are secondary in significance to cardiovascular diseases related to total deaths in the United States. More than 930,000 people died from heart-related diseases in 1990, costing $117.4 billion. Of the $117.4 billion, the American Heart Association (AHA, 1993) estimates that $75.2 billion paid for hospital and nursing home care; $17.9 billion went for doctors and nurses; $6.7 billion paid for drugs; and $17.6 billion, for lost work productivity. Heart attacks remained the leading cause of death among men and women in the United States in 1992.
Cooper (1993) stated that despite such statistics the general public does not seem to think that heart disease should receive priority in terms of research funding. As the AHA president, Cooper cited surveys that show people would prefer to spend more research dollars on cancer and AIDS, which kill fewer people annually. In 1990, about 575,000 Americans died from cancer of the 3.0 million active cases; 925,000 deaths from heart-related diseases of the 59.0 million active cases; 160,000 deaths from diabetes of the 14.0 million active cases; and 24,000 HIV-infected individuals died from AIDS. It has been estimated by the USDHHS that 38,000 AIDS deaths from 402,000 active cases will occur in 1995 (1993, American Heart Association).

The AHA (1993) estimated that the Department of Health and Human Services budgeted and spent $36,763 in research for every AIDS or HIV-related death in 1993. In contrast, $3,708 was spent for every death from cancer, $1,032 for every death from heart disease, $731 for every death from stroke, and $5,421 for every death from diabetes. According to USDHHS (1994) calculations, $6.0 billion will have been spent in 1995 for AIDS-related expenses for research, education, and treatment. Comparatively, $17.5 billion will have been spent in 1995 for cancer-related expenses, and approximately $38.0 billion for heart disease related-expenses covering research, education, and treatment.

The debate about AIDS spending reveals that not all important medical science discoveries occur in federal laboratories. Although the United States government spends billions of dollars in research and development each year ($11.3 billion), pharmaceutical companies spend more, comparatively ($15.0 billion). No nation produces more pharmaceutical, biological, biogenetic, and technological innovations than the United States. American-based companies hold the patents to more than 70% of all biotech products, and United States firms have
developed more new drugs in the past two decades than the five most productive countries, including Japan, Britain, Germany, Switzerland, and France.

American medical firms are annually testing 125 FDA-approved medicines for diseases that afflict elderly Americans, 330 medicines for diseases that disproportionately affect women, and 107 compounds for AIDS and related diseases. Only about 30 new drugs annually receive final FDA approval and are introduced into the market, resulting in an average developmental cost of approximately $400 million. As a result, two primary research problem areas, capital gains tax laws and a cumbersome approval process, need to be studied to efficiently reduce the FDA’s approval time for new drugs to be developed (tested and found beneficial) and the time it takes for each newly developed drug to reach the general public for medical use. It is for these two reasons that 61% of all new drugs approved during the 1990-1994 period were introduced in foreign markets, and American patients had to wait an average of 6 extra years to have access to them. New biotech products take 14.8 years to move from the patent-application stage to final FDA approval (AMA, 1994).

Meanwhile, increased awareness concerning HIV transmission and AIDS is continually being stressed nationally and internationally. Roy Anderson of Imperial College of Science and Technology in London, working with Robert May of Oxford University, stated, “We must galvanize society (globally). This is the most serious threat to human kind in modern times, and the situation calls for massive investment to find a vaccine” (Perlez, 1992, p.17A). Anderson emphasizes that educators should focus on adolescents and young people regarding prevention and protection awareness education concerning HIV infection and transmission. Adequate support funding is required for effective HIV/AIDS prevention and protection awareness programs.
Conversely, the 1993 Texas Legislative budget staff developed a 2-year spending proposal slashing state spending on AIDS by 94%, or $32 million, and cut or eliminated services for AIDS medicine, counseling, education, and prevention (Staff, 1993a). Texas and other states’ health department leaders have been told to expect cuts in the amount of federal money available to finance state and local health department programs aimed at stopping or slowing the spread of HIV. For every dollar spent on AIDS prevention, the savings in health care cost equals 30 dollars, yielding a 1:30 savings ratio (Staff, 1993a).

Nevertheless, Hinman (1992) as director of the National Center for Prevention Services, a unit of the USPHS, confirmed federal budget cuts by telling states’ health officials to expect funding cuts in 1993. Hinman (1992) stated, “All states will receive reduced levels of (federal) funding in 1993 compared to funding received in 1992 . . . no state will receive an increase” (p. 4A). Federal funds account for at least 75% of any state’s spending totals for AIDS prevention programs, which includes testing, counseling, education, and victim notification. Final Report: NCA (1993)

Osborn, from the University of Michigan, 1992 chairwoman for the panel making up the National Commission on AIDS (NCA), stated that President Bush’s and Louis Sullivan’s (Secretary of USDHHS, 1992) responses were “woefully inadequate” to the Commission’s 1991 report citing 30 HIV/AIDS prevention-care recommendations. Osborn warned, “This (HIV/AIDS epidemic) is going to get very, very big . . . people are literally dying in the streets” (Painter, 1993a, p. 1D; Staff, 1993a, p. 14A). The failed area of response is in national leadership, including the development of a national plan with adequate financial support for needed health care.

President Clinton in 1992 stated publicly that his administration will strive to be more accountable regarding increased federal appropriations to fight HIV
and AIDS. The Clinton administration proposed a 1994 budget that included $2.7 billion for AIDS research, treatment, and prevention, representing a 28% increase over 1993 spending. Additionally, to bring greater focus to the HIV/AIDS dilemma, President Clinton appointed Kristine Gebbie of the University of Portland, as the first United States AIDS policy coordinator. The appointment fulfilled Clinton’s campaign pledge to create a top-level post to develop and coordinate an enhanced federal campaign to combat HIV/AIDS. The purpose was to bring new cooperation and an overall strategy to the activities of the many federal agencies that deal with aspects of the AIDS crisis, such as the CDC, the Public Health Service, and the National Institutes of Health.

Unfortunately, Gebbie resigned in mid-1994 due to the increased frustration she felt from attempting to deal effectively with the various political bureaucracies within the nation’s capital. Gebbie had difficulties gaining the necessary support-base to effectively develop an acceptable HIV/AIDS national campaign for the United States. She felt that she greatly had underestimated the degree of conflict among various government and civic groups whose leadership and involvement were necessary to successfully formulate an effective national HIV/AIDS program and campaign. Gebbie felt that the position was not well-structured, well-conceived, or well-staffed. The mission of Gebbie’s new post had not been defined, and the lack of definition created some enormous and conflicting expectations (Los Angeles Times, 1994 July 9).

The National Commission on AIDS (NCA, 1993) ended a 4-year review of the HIV/AIDS epidemic’s public health, socioeconomic, and political impact within the United States in mid-1993. The 15-member NCA review was mandated by Congress in 1989 to advise the nation on what to do about HIV and AIDS. Their report on AIDS, An Expanding Tragedy, criticized “a failure of (national) leadership” in successfully combating the epidemic. Osborn (1993), as the NCA
chairwoman, clearly stated, "A strong, consistent voice of leadership could have steered courses of action, that might have interrupted the relentless continuation of HIV spread, instead of silently tolerating the epidemic's escalation." The National Commission on AIDS final report concluded:

The failure to respond adequately represents at best continued dogged denial, and at worst a dismaying hidden and unvoiced belief that this is just a disease of gay men and intravenous drug users, both groups that are perceived as disposable . . . The appalling lack of frank discussions about the epidemic at all levels of national leadership fostered a woefully inadequate response, yielding death and suffering well in excess of what might have been . . . We must speak thoughtfully, boldly, and consistently. If we lower our voice . . . we have failed not only at public policy, but at public trust . . . until we have a vaccine and a first-class education campaign and a strategy to change the risky behavior of people in relationships to HIV and AIDS, any criticism is justified (NCA, 1993).

The NCA's final report had only two primary recommendations: (a) a call for leaders, from President Clinton downward, to speak out on (HIV and) AIDS, and (b) a call for a "clear, well-articulated national plan for confronting AIDS" in the United States as we approach the 21st century (NCA, 1993).

Meanwhile, a divided United States Supreme Court in November 1992 refused to review whether federal pension law prohibited a Houston music company from almost eliminating medical benefits for an employee who had contracted AIDS. The Justices voted 7 to 2 to leave intact a legal decision, setting a precedent affecting residents in Texas, Louisiana, and Mississippi, which declares that federal law did not bar self-insured companies from reducing health
coverage. The Bush administration urged the Supreme Court to deny review, arguing that the Employee Retirement Income Security Act of 1974 permitted H & H Music Company of Houston, Texas, to reduce its medical coverage for an AIDS-infected warehouseman. Several large health organizations, including the American Medical Association, lobbied to request the Supreme Court to review the New Orleans-based United States Court of Appeals for the Fifth Circuit, ruling affecting HIV and AIDS employee health care (McGonigle, 1992).

Additionally, the Clinton administration in June 1993 issued new benefit rulings making it easier for AIDS victims to be awarded federal disability benefits through social security payments. The response may be due to a class-action lawsuit filed in 1990 by 19 New York residents. The plaintiffs complained that they had been improperly denied health-care-related benefits because of HIV-related illnesses.

Higher Education and HIV/AIDS

A Call for a New HIV Education Agenda

An important public health and education issue remains to plead with our moral and ethical consciousness to progressively improve HIV, AIDS, and STD prevention and protection awareness education. Focused efforts work to enhance our knowledge and understanding, altering our individual attitudes, behaviors, personal health choices, and health care program decisions, as college administrators, faculty, health care practitioners, and students.

Effective higher education programs designed to enhance HIV/AIDS prevention and protection awareness among all members of the academic community must be a cooperative effort. It should be an interactive cooperation, with higher education interconnected and networking among health organizations;
federal, state, and county government agencies; public and private health care entities; and public and private elementary and secondary schools.

A call for a new agenda regarding effective HIV/AIDS education prevention and protection awareness in higher education has been voiced by Richard Keeling (1991), chair for the American College Health Association (ACHA) Task Force on HIV and AIDS. Keeling is a recognized authority in higher education regarding health issues on American college campuses related to HIV/AIDS prevention. He feels that we must build awareness and cooperation among our campus communities supporting more healthful behaviors and personal health choices among students and college personnel. Also, a higher level of connectedness and cooperation must be built among all campus researchers, educators, administrators, counselors, clinicians, and direct health care practitioners, such as athletic trainers, working together in higher education for the greater impact on our campuses. It is hoped that the result will be a more powerful and collective voice to bring greater perspective to those who make health care education program development decisions and allocate needed funding for program implementation, going beyond mere official guidelines and policy statements.

Effective HIV awareness education is an essential element of planned campus health programs in higher education. Education yields an increased personal understanding of the HIV epidemic's present and future impact, resulting in improved knowledge, attitude, and behavioral modifications and personal health choices. Focusing on the development and implementation of HIV prevention and protection objectives through effective inservice education program models, enhances well-being of all campus program participants, socially, academically, and athletically, in the specific areas of recreational sports and intercollegiate student athlete health care activities.
The HIV epidemic can no longer be identified as a disease of a few stigmatized social groups or risk groups, but as a disease caused by risk behaviors. The importance of understanding the virus and its potential effect upon all society’s members will only be as great as our acceptance of HIV as a community health problem in each sector of our society. The higher education sector is not immune to potential impact.

Educational Intervention

HIV and AIDS: A Dilemma for College Students

Primarily, AIDS is a disease of young people, with an average age in the early 30s at time of diagnosis. The majority of confirmed AIDS cases is in people between 25 and 45 years of age. The period between the date of HIV infection and the date of clinical diagnosis ranges up to 10 or more years. Therefore, one may conclude that HIV infection is usually acquired by adolescents and young adults between their late teens and the late 20s. Most college students are in this specific risk and age group (Association of Governing Boards (AGB), 1990).

The AGB’s (1990) special report Richard Keeling (ed.) cautions that as the average age of students rise, more and more institutions will be confronted by the needs of students with HIV infections and developed clinical conditions resulting in AIDS. Currently, graduate and professional students, non-traditional or returning undergraduates, and members of the faculty and support staffs are more likely to experience AIDS than the traditional undergraduate. But, one should never lose sight of the fact, HIV infections are occurring during the adolescent years resulting in confirmed cases of AIDS in later life during the observed ages of 25 to 45 years, thus potentially impacting higher education for years to come.

HIV/AIDS Studies Conducted in Higher Education

The report of the President’s Commission on the Human Immunodeficiency Virus (USDHHS, 1989) contained 228 recommendations with many of the
recommendations placing a strong emphasis on health awareness and prevention through the traditional secondary and postsecondary educational processes. Kerr (1989) reported that only 25 states mandated health education and HIV education requirements for graduation.

Need for Enhanced Health Education

Edwards (1992) conducted a survey assessing the level of personal and general health knowledge among 4,654 high school seniors, representing all regions of the nation. The results are shocking and should serve as a warning signal to educators on all academic levels regarding the effectiveness of current interventions in enhancing behavioral modification and personal health choices among students.

Of Edwards’ (1992) surveyed students, 61% failed, scoring lower than 60%, with 14% receiving an “A” (at least 90% correct answers). When responding to questions about the human body, only 40% could correctly identify blood as the agent carrying oxygen through the body’s system. Only 44% knew that the heart is a muscle. Seniors fared even worse on nutrition: 37% picked cottage cheese as lowest in harmful levels of fat, compared to 32% who selected carrots (the correct answer). Students did a little better with exercise and general health questions, answering 58% of the category questions correctly. Slightly more than half (51%) could identify aerobics as a better cardiovascular exercise than weight training or playing a round of golf (18 holes).

It is important to understand that many students will matriculate to postsecondary institutions without any extensive health education and specific HIV, AIDS, and STD education. The current dilemma reveals that concerned health educators and health care professionals at the intercollegiate level cannot wait until the year 2000 to begin to have an impact regarding HIV and AIDS
awareness education. The initiative should be to effectively educate the public about HIV and AIDS for improved personal health choices and safe practices.

Edwards (1992) asserted that the survey reinforces what many health professionals already knew: Today's students are not as healthy and/or aware as their parents were at the same age. "We have failed to convey to students, and their parents, that health education and physical education is basic" (Edwards, 1992, p. 15). Edwards feels that if we don't do something soon, our nation will pay an enormous price in lost productivity, spiraling health care costs, and broken lives. He concludes that a grassroots campaign is needed by parents and teachers to convince members of educational boards and state legislatures of the need for enhanced health education and physical education programs that promote lifetime health activities and personal health-choice behavioral modifications.

Putting a Face on AIDS

Legion (1990) has focused on giving HIV, AIDS, and STD a human face with effective educational interventions. According to Legion three HIV and AIDS educational issues need to be confronted prior to effective interventions:

1. People need help in obtaining the interpersonal skills and access to available resources that are needed to manage lower risk behavior.

2. Perceived community norms (what people think other people are thinking) play an important role in determining individual attitudes and behaviors. Interventions should not simply target the knowledge, attitudes, and beliefs of individuals, but the norms articulated by an entire community environment.

3. The HIV and AIDS education process participants must understand the social and political factors that shape individual attitudes and behaviors.

Moreover, the study of Carney (1991) gave support to the Legion, Levy, Cox and Shulman (1990) investigation. The researchers surveyed students and faculty revealing that they were not likely to participate in AIDS education
programs fearing they might be stigmatized as being at risk if they attend a public information session.

**Effective Peer-leader Counseling**

In studying effective peer-leader counseling model intervention, Skulkin et al. (1991) reported findings that measured the effects of peer-group-led AIDS intervention among university students. Peer educators presented AIDS-related information. The results showed significant improvement among subjects on the knowledge, attitude, and behavior intention scales compared with the control group. This approach effectively changes an individual’s HIV, AIDS, and STD related knowledge and attitudes, which are deemed necessary to promote safer sports wellness practices and decrease risk of HIV, AIDS, and STD infections. Peer-leadership counseling, particularly in intercollegiate sports wellness awareness programs, may create a social environment that supports risk-reducing behavior as the norm, rather than the exception. Peer-leader counseling is often the most influential power to reshape health-related attitudes and behavioral modifications.

Weiller (1986) studied the identification of leaders among the Dallas Mavericks professional basketball team, utilizing the player personnel. The investigator used the sociogram and paired comparison instruments to identify the peer-leaders whom the peer-players would look to as well as those leaders the coaching staff would select. The implications of this study pointed out that peer-leadership within a sports team is not always positive. Within any peer-group setting, whether professional or amateur sports teams or business groups, it is possible to have peer-leaders who are negative influences, as well as peer-leaders who exhibit negative and positive leadership qualities from time to time.

Weiller (1986) found that, in identifying the specific directionality of peer-leadership, the coaching staff and/or team athletic trainer(s) could utilize the
positive peer-leaders to positively influence the remainder of the team's members toward the overall healthful welfare objectives, both physiologically and psychologically. It was concluded that, in doing so, a more productive, satisfied, higher self-esteemed, and focused group might result.

**HIV and AIDS: Classroom Intervention**

Ample justification for implementation of ongoing peer-leader counseling processes versus the classroom setting for awareness becomes clearer through the studies conducted by Fennell (1990; 1991). The purposes of his studies were to investigate the effects of a one-credit hour and two-credit semester course for increasing knowledge about AIDS, increasing positive attitudes towards AIDS in general, and decreasing negative attitudes about college students with AIDS. Fennell's studies (1990; 1991) give support to research by Connell, Turner, and Mason (1985) determining that more hours are required for significant developmental health awareness attitudes and practice modifications and that stable effects are established for all three areas, with between 40 and 50 classroom hours of interactive instruction.

Fennell's (1990; 1991) results indicate that attitudes can change in a positive direction if students are given activities that make them personally analyze and critically think about the ethical issues confronting society regarding the HIV and AIDS dilemma. Although important, these studies primarily investigated changes in knowledge and attitudes. Fennell suggested that future research studies concentrate on attitude and behavioral relationships and modifications regarding HIV, AIDS, and STDs, directly focusing on improved personal health awareness choices and practices.

**Perception of HIV and AIDS**

In studying an audience's perception of HIV, AIDS, and STD information, Cline and Engel (1991) conducted recent research, concluding that messages about
HIV, AIDS, and STD come from many sources and in various formats. The source may vary in terms of characteristics that influence audience receptivity. An understanding of an audience's perceptions of information sources is critical to developing effective HIV, AIDS, and STD sports wellness health prevention and protection models. Cline and Engel (1991) suggested that various theorists have identified the likely sequence of influence that leads to behavioral change. The causal chain within information processing occurs as follows:

1. Exposure will lead to awareness, but only when the message is attended to by the interactive participant.
2. Awareness will lead to changes in knowledge, but only when the message is comprehended by the participant.
3. Changes in knowledge will lead to changes in beliefs, but only if the arguments or conclusions of the message are accepted or yielded to by the participant.
4. Changes in beliefs might lead to changes in attitude, intentions, and ultimately behavior (Flay, DiTecco, & Schlegel, 1980).

Furthermore, Goertzel and Bluebond-Langer (1991) and Lumsden (1991) support Cline and Engel's (1991) investigation, finding no significant increase in either the experimental or control groups in students' perceptions of their own vulnerability to AIDS. Nor was there any statistically significant change in AIDS-related sexual or drug-abuse behavior after 225 college seniors took a 1-semester-hour course on AIDS. Lumsden (1991) cautioned that, although many schools in the United States have implemented some form of education awareness addressing HIV and AIDS, there is valid evidence that the quality of most programs leaves much to be desired.
A Debate in Higher Education: Financing AIDS Research

Why is the debate over how much money should be spent on HIV/AIDS research in the higher education sector intensifying 10 years or more after the first confirmed case of AIDS in the United States? The Chronicle of Higher Education (1991, November 21) discussed the federal financing levels being reduced as some medical scientists say more funds are needed and others are urging a broader research focus. For 1992, Congress voted to increase the budget for AIDS research by 5.8%. In comparison, the research budget for the National Institute of Health (NIH) increased by 8.9%, with the budget for cancer research expanding by 16%. Meanwhile, it is currently debated in higher education that basic research not specifically AIDS targeted may well produce a medical science break-through regarding problems attributed to HIV and AIDS.

Preventing viral transmission is the only effective measure to control the HIV epidemic, currently. C. Everett Koop (1988) stated, “It (HIV) can be controlled by changes in personal behavior. It is the responsibility of every citizen to be informed about AIDS and to exercise the appropriate preventive measures” (p. 52). As long as there is evidence of anxiety, fear, denial, apathy, along with ineffective HIV prevention and protection programs concerning the modes of HIV transmission, the higher education sector faces the risk of discriminatory legislative influences formed from public health policy decisions and regulations. For example, President Bush’s plan for battling the epidemic called for continued research and state legislation to make it a crime to knowingly engage in the transmission of HIV.

Another example of federal regulatory influence in higher education regarding HIV prevention and protection standards was discussed in the NATA News (1992, October) stating, “Whether it’s on a football field, in a basketball arena, or in your own training room, when you provide health care services to
athletes, it is almost inevitable that blood will be involved” (pp. 4-5). The Occupational Safety and Health Administration (OSHA) has issued standards governing occupational exposure to blood-borne pathogens, protecting employees in the workplace from communicable infectious diseases, such as HIV and hepatitis B virus. The OSHA Standard means that employers (including universities and colleges) are now required to protect employees from occupational exposure to HIV, HBV, and other bloodborne pathogens in the workplace. In August 1992 the NCAA informed all athletic directors in member institutions that, “Training rooms and other sports-medicine facilities are workplaces in which employees may be exposed to blood or other potentially infectious materials,” (NATA News, 1992, p. 5).

In short, the OSHA Standard directly puts the full responsibility for protecting the employee on the employer to determine if the standard applies to a particular work situation, along with determining the potential for exposure.

The OSHA Standard briefly covers the following important points:

1. Who’s covered? The standard applies to all employees who could be reasonably anticipated to come into contact with blood or other potentially infectious materials during the performance of job duties.

2. Exposure Control Plan: This plan requires employers to identify tasks, procedures, and job classifications, in writing, where occupational exposure to blood may occur. The plan must be available for employee review and updated annually.

3. Universal Precautions: This means that all blood and body fluids should be treated as if they were infectious. Universal precautions are available through the CDC.

4. Protective Equipment: All employers must provide, at the employer’s expense, employees with personal protective equipment and supplies, such as
gloves, masks, goggles, and smocks. Employers must clean, repair, and replace equipment and supplies as needed.

5. Hepatitis B Vaccinations: Employers must make HBV vaccinations available to all employees who have occupational exposure, at no cost to the employees, and HBV vaccinations cannot be declined by employees in the workplace.

6. Post-Exposure Evaluations: Confidential medical evaluation and counseling must be made available to all employees who have had an exposure incident. All laboratory tests and medical evaluations must be provided at no cost to the employees.

7. Annual Training: Every occupationally exposed employee must be given annual training on all aspects of bloodborne diseases. The training should include (a) modes of transmission, (b) preventive measures, (c) correct use of protective equipment, and (d) the medical evaluation that is mandated after exposure to blood and/or other infectious materials in the workplace.

AIDS Education Goals in Higher Education

Primarily, HIV and AIDS are diseases of young people. The majority of confirmed cases of AIDS are people between 25 and 45 years of age. The period between the date of HIV infection and the date of clinical diagnosis for AIDS is approximately 10 years, but can be as early as 1 to 2 years. Therefore, one may conclude that HIV infection is usually acquired by adolescents and young adults between the late teens and the late 20s. Most college and university students are in these specific risk and age groups (AGB, 1990). The Association of Governing Boards' report (1990) cautions that as the average age of students rises, more and more institutions will be confronted by the needs of students with HIV infections and AIDS. This cautioned reality potentially impacts higher education for years to come.
A special report of the ACHA Task Force on AIDS (1989) listed seven goals of AIDS education for campus communities in higher education. The AIDS education program’s goals are multiple:

1. To prevent further spread of HIV to uninfected people;
2. To delay or prevent the development of illness in people who already have HIV infection;
3. To prevent or reduce unreasonable fears about the transmission of HIV;
4. To promote compassionate and caring responses to people with HIV infection and AIDS;
5. To provide support for needed services for people with HIV infection and AIDS;
6. To combat prejudice and discrimination against people with HIV infection and AIDS; and
7. To ensure attention to the important economic, social, ethical, legislative, legal, and psychological issues created by the HIV epidemic. In addition, the ACHA Task Force (1989) cited two primary purposes for campus AIDS education programs: (a) to prevent unwarranted fear of HIV infection and (b) to provide accurate information about HIV transmission and prevention.

AIDS Policies and Higher Education

Gunn’s (1991) study of all the post-secondary institutions accredited by the Commission on Colleges of the Southern Association of Colleges and Schools located in Texas determined the number that had AIDS policies regarding individuals with AIDS. Of the 155 accredited institutions, 133 participated in the study.

Texas colleges and universities were found by Gunn (1991) to be leading other institutions in the development of policies in response to the HIV/AIDS dilemma in higher education. Gunn concluded that a large number of institutions
with developed policies, or those institutions in the process, may not have comprehensive AIDS policies. Various institutions may have developed lightly structured policies to be in compliance with legislative mandates. Keeling (1990) revealed that no single universally applicable model is available for AIDS-related policies in higher education. Many governing boards have accepted the challenge of leadership and have recognized the need for accountability (AGB, 1990).

Specifically regarding community colleges, McLeod and Ziel (1989) wrote that, because community colleges bring together many different types of people, they must be prepared to deal with the problem of HIV/AIDS issues on their campuses. Community colleges should develop a comprehensive infectious disease control policy that pertains to both students and employees. McLeod and Ziel (1989) feel that community colleges should make every effort to keep HIV and AIDS from spreading and that educational programs can help to achieve this objective. Moreover, community colleges are obligated to protect infected personnel from secondary infections and discrimination. Cooperative arrangements should be explored with other agencies.

Uncertainty/Indecision Among Leaders in Higher Education

Keeling (1989) revealed that HIV/AIDS-related issues in higher education cause various degrees of uncertainty and indecision regarding preventive and protective program development and implementation among college boards, presidents, administrative staffs and support personnel, counselors, faculty, and health care providers involved with diverse problems within the respective campus communities. Examples of diverse campus-related HIV transmission problems involve (a) residential housing, (b) food services, (c) employee relations, (d) health care, (e) counseling activities, and (f) related athletics and recreational sports.

Special reports by the American College Health Association (1989) and the AGB (1990) called for the need to provide adequate HIV education awareness
within intercollegiate athletics. It is recognized that many college student athletes engage in personal risk behaviors that increase the chances for becoming HIV-positive. The ACHA (1989) feels that it is every higher education institution's ethical, moral, and legal responsibility to make sure all students receive adequate information regarding high-risk behaviors and the most effective prevention strategies currently available for implementation.

To be effective, intercollegiate athletics health care awareness and prevention programs should deal with HIV-related issues directly providing updated information regarding high-risk sexual and drug use behaviors and accompanying personal risk-reduction information. Athletics directors, athletic trainers, and other athletics staff members can serve as respected sources of HIV-related information that is of personal concern to every student athlete's well-being. The reinforcement of positive changes in athletes' personal health choices through improved knowledge, attitude, and behavior modifications can be greatly enhanced when athletics directors, athletic trainers, head coaches, and their respective athletics staff members consider HIV transmission a critical health care issue in college sports programs.

TOM: Leadership, Participation, and Measurement

Townsend and Gebhardt (1992) laid a practical foundation and developed blueprints for achieving enhanced total quality program management criterion, processes, and services through the interaction of leadership, participation, and measurement of progress. In essence, the development of a strategic athletic health care awareness and service criterion for applicable use in intercollegiate athletic programs concerning HIV transmission prevention should be a cooperative and combined leadership, participation, and measurement effort among all athletic department personnel in higher education.
Knorr (1991) noted that quality [health care] leadership is as vital in intercollegiate athletics as in any related area of education. A proper training and learning environment must be established and maintained to enhance personal health choices and practices that are in the best interest of all athletes, coaching staff members, athletic trainers, and their support staffs of health care practitioners and athletics directors.

Griffin's (1984) view for effective leadership has three interwoven concept elements: expert power, influence, and authority. Expert power can be viewed as the potential ability to affect the behavior of individuals based on critical information and expertise, whereas, influence occurs when a person consciously or unconsciously uses his or her power to modify the attitudes and behaviors of targeted individuals. Authority is regarded as the power created by a group or organization. Griffin's (1984) three-point concept regarding effective leadership can be used to define effective sports wellness and athlete health care leadership as the ability to positively influence the personal health choices and practices of individuals within respective sports groups or sports organizations for everyone's physiological and psychological well-being.

Powell (1987) conducted a survey of studies concerning health care services made available within intercollegiate athletics programs. He noted that such care is limited, indeed, with only 10 to 20% of the nation’s high schools employing a certified athletic trainer. As a result, the coaching staffs' members must fill the role of a functional athletic health care practitioner. Culpeper (1986) found that a majority of coaches considered themselves inadequately prepared regarding the proper handling of athletic injuries and related sports wellness activities.
HIV Prevention: Background in College Athletics

HIV and its prevention, through enhanced education and health care services, is a reluctantly discussed athlete health issue within intercollegiate athletics in higher education today. Attention should be given to the statement by Mann (1992), from the Harvard School of Public Health, that HIV transmission concerns should focus on when HIV will begin to have a significant impact within intercollegiate athletics health care services, not if HIV infection will be a reality in sports programs across the nation. Wolitski and Keeling (1989) related that an athlete’s risk of HIV infection is much greater off the field than during competition or practice sessions. It is the joint responsibility of the athletics director, director of student health services, and the athletic trainer to ensure that risk-reduction administrative decisions concerning necessary guidelines, specific health care procedures, medical equipment and supplies, and educational materials are consistently available for athletes and athletics staff members.

Education in intercollegiate athletics programs is the cornerstone for effective HIV prevention and protection within higher education. Athletics directors, athletic trainers, and their support staffs play a very important role in the dissemination of health-related information concerning preventable HIV transmission in the athletic setting (ACHA, 1989). Why is there a noticeable void in the debate and literature regarding focused articles and documented research in the intercollegiate athletics setting? Are people still in an HIV-epidemic denial stage? Who must provide effective leadership in formulating effective student athlete health care objectives in the athletics setting in higher education?

Through a thorough review of the literature related to HIV and AIDS prevention and protection issues in higher education and sports medicine, specific areas for focused research are apparent. It is also apparent that a void currently
exists in regards to sufficient and ongoing research conducted within the area of intercollegiate athletics programs directly concerning HIV and AIDS prevention and protection health care issues for athletes.

**Intercollegiate Athletics Health Care: A Call to Move Forward**

Keeling (1991), in chairing the Task Force on HIV and AIDS for the American College Health Association, called for the establishment of a new agenda for the next decade regarding effective HIV and AIDS prevention and protection awareness education. He suggested that the new agenda be an ambitious, globally-networked, research-oriented, assessing, evaluative, integrated, interactive, and progressive agenda in higher education college health service programs.

A study completed by the ACHA (Wakelle-Lynch, 1989) through a cooperative agreement with the CDC, tested anonymous blood samples from college students at 19 different campuses. The results of the study discovered that 1 in 500 random blood samples was HIV-positive. Related studies by Wattleton (1987) on sexual activity and by Kegeles (1988) on birth control (condom use and drug experimentation) suggest that many young people are not engaging in behavioral risk-reduction to significantly reduce their risk of infections concerning HIV, AIDS, and other STDs.

McDermott, Liller, and Rosevelt (1990) compared allied and non-allied health students and found that both groups supported mandatory testing. Proportionately more of the allied health students had thought about having a blood test for the HIV antibody, had discussed HIV/AIDS with a friend, and had known someone who had AIDS or who had died from AIDS. Moreover, Tesch, Simpson, and Kirby (1990) surveyed 445 first/second/third-year medical students and 111 second-year nursing students about AIDS issues and found that, the more knowledgeable the students, the less likely they were to refuse treatment to an
AIDS patient, to require mandatory testing, or to require medical/health care personnel to wear gloves. Nursing students believed as a group that physicians should be tested for AIDS and that people with AIDS should be restricted from allied health care occupations.

Most infectious disease and AIDS authorities believe that the risk of HIV transmission during athletic competition is exceedingly low (Hamel, 1992). But these same medical authorities will also admit that HIV transmission could occur, minus common-sense techniques to prevent transmission, such as covering open wounds and removing bleeding players from further competition until wounds are securely covered. Only one case reported in the literature suggests an instance of on-field HIV transmission (Torre, Sampietro, Ferraro, Zerioli, & Speranza, 1990). Skarek, Mantovani, Erens, Heisler, and Niederman (1984) suggested that the sharing of needles for anabolic steroid injections may have led to HIV infection and AIDS in at least one bodybuilder. It is possible that incidents may be underreported due to concerns regarding athlete confidentiality.

Torre et al. (1990) wrote of the two soccer players who collided during a 1989 Italian soccer match and sustained head wounds. One of the players was a known intravenous drug abuser who was HIV-positive. This possibility generates debate for mandatory HIV testing in sporting events, but most infectious disease authorities believe this stance to be unethical and unwarranted (Seltzer, 1993).

As of early 1995, there had been 12 athletes from various sports who have contracted HIV/AIDS. They are as follows:

1. Arthur Ashe: a champion tennis player. He died on February 6, 1993, at age 49.

3. John Curry: a figure skater who won the gold medal at the 1976 Olympics in Innsbruck, Austria, and the world championship title the same year. He died on April 15, 1994, at age 46.


6. Magic Johnson: He announced that he was HIV-positive on November 7, 1991, and that he was retiring at age 32 from the Los Angeles Lakers. He subsequently played on the Dream Team at the 1992 Olympics.

7. Chad Kinch: He played basketball in the Final Four for North Carolina-Charlotte in 1977. In 1980 he was a number-one draft pick for the Cleveland Cavaliers. He died on April 3, 1994, at age 35.

8. Greg Louganis: He disclosed on February 22, 1995, that he is HIV-positive and that he was infected with the AIDS virus when he won two gold medals for diving at the 1988 Olympics. He also won two gold medals in the 1984 Olympics.

9. Tim Richmond: He was one of stock-car racing's most promising drivers. He died on August 16, 1989, at age 34.

10. Jerry Smith: An All-Pro tight end for the Washington Redskins football team from 1965 to 1977, he died on October 15, 1986, at age 43. He was the first professional athlete known to have died from AIDS.

11. Thomas Waddell: He was a member of the United States decathlon team in the 1968 Mexico City Olympics. He died on July 11, 1987, at age 49.

HIV/AIDS: First Studies in Athletic Training

Dewald (1992) conducted the first published study in higher education’s intercollegiate athletics setting addressing HIV and AIDS knowledge among student athletic trainers and the increasing risk of HIV transmission in their work as practicing student athletic trainers. She surveyed 112 student athletic trainers from five college curriculum programs approved by the National Athletic Trainers’ Association (NATA). With increasing athletic health care concern within higher education’s sports management and coaching professions, Dewald’s (1992) study revealed the following:

1. Forty-eight percent of the student athletic trainers agreed that they are “at risk of getting HIV” and 44% agreed that they are “at risk of getting AIDS.”

2. Forty-nine percent of the student athletic trainers were not concerned about hepatitis B virus transmission in the athletic training profession, while 43% were concerned.

3. More student athletic trainers (53%) were concerned with HIV and AIDS than hepatitis B virus (43%) in their work as student athletic trainers.

4. Fifty-three percent of the student athletic trainers were concerned with acquiring communicable diseases in the athletic training setting.

5. Fifty-eight percent of student athletic trainers were concerned with acquiring communicable diseases in the athletic training profession.

6. Fifty-five percent of student athletic trainers were more concerned with acquiring HIV and AIDS in the general public than in the athletics setting.

7. Student athletic trainers failed to correctly identify the age groups most at risk of acquiring HIV: groups 14 to 18 and 18 to 22 years of age.

8. The student athletic trainers are not overwhelmingly changing their own personal risk behaviors to protect themselves from HIV infection.
9. Students did not list athletic injuries resulting in body fluid loss as a mode of transmission of HIV from one individual to another in the athletics setting.

10. Students are not protecting themselves in the athletic training setting from HIV transmission risks.

11. No students listed any of the universal precautions for health care workers (i.e., rubber gloves, disposable medical instruments, biohazardous waste container, surface sterilization, hand washing).

12. Student athletic trainers, who are in the specific age groups that are considered most at risk of acquiring HIV and AIDS, do not view themselves as at risk within the college campus or athletic training settings. (Dewald, 1992, pp. 43-44)

Dewald (1992) emphasized that athletics departments have addressed the drug-abuse issues with effective educational programs. They now must address HIV transmission risks for infection with the same focused commitment, resulting in implemented educational awareness prevention and protection inservice program endorsement models for the appropriate athletics staff personnel who have the responsibility to provide adequate intercollegiate athletics health care services through verified competencies in athletic training.

Boyle, Sitler, Duffy, Rogers, and Kimura (1995) surveyed 420 certified athletic trainers throughout the state of Pennsylvania regarding their level of HIV/AIDS knowledge and their attitudes in treating the athletic injuries of HIV+/AIDS athletes. The authors' review of the literature revealed that, despite the level of education attained, some allied health professionals have misconceptions about HIV+/AIDS individuals. The investigation of Boyle et al. (1995) is the first known published study to determine the level of knowledge and
attitudes of NATA-certified athletic trainers, as practitioners in the field treating the athletic injuries of HIV+/AIDS athletes

The results of the Boyle et al. (1995) indicate that athletic trainers in the state of Pennsylvania are "moderately knowledgeable" about HIV+/AIDS, scoring an average 61% on the knowledge assessment instrument. The majority of the respondents were white (97%) males (65%) who were certified through an undergraduate curriculum (60%) and 54% had earned a master's degree. The respondents' primary mode of HIV/AIDS education was as follows: seminar, 49%; undergraduate education, 19%; undergraduate/seminar, 4%; and 28% of the athletic trainers had no formal HIV/AIDS education.

The majority of the respondents in the Boyle et al. (1995) study had an overall "positive attitude" in treating the athletic injuries of HIV+ athletes, although 56% were concerned about cross-contamination. Eighty-four percent felt "a need to know" if an athlete was diagnosed as HIV-positive. Fifty-six percent felt that HIV-positive athletes should not be allowed to compete in contact sports.

NATA Board of Directors' HIV Guidelines

The Professional Education Committee of the National Athletic Trainers' Association developed, and annually updates, six domains of competencies identified as necessary for providing effective athletics health care services to athletes. There is no specific notation or discussion concerning HIV prevention and protection within the athletics setting. The six established domains of competencies for athletic trainers are: (a) prevention; (b) recognition and evaluation; (c) management/treatment and disposition; (c) rehabilitation; (d) organization and administration; and (f) education and counseling (NATA, 1992a).

In September of 1995, the NATA Board of Directors published specific guidelines for athletic trainers concerning the management of blood-borne pathogen-related HIV/HBV issues regarding the "physically active" within the
athletic setting. NATA’s guidelines are not to be taken to represent national standards applicable to all NATA membership nationwide. Because of the complex ethical, social, medical, and legal issues involved regarding blood-borne pathogens (i.e., HIV and HBV), NATA wishes that athletic trainers, athletics administrators, and others involved with the care and training of athletes to understand that the medical and professional knowledge, standards, and requirements are changing and evolving constantly, varying from place to place and from setting to setting. The NATA Board of Directors’ (1995) HIV transmission, prevention, and protection guidelines cover (a) athletic participation; (b) education of the physically active; (c) the athletic trainers and blood-borne pathogens at athletic events; (d) student athletic trainer education; (e) universal precautions and OSHA regulations; (f) medical records and confidentiality; (g) the infected athletic trainer; (h) HIV and HBV testing; (i) HBV vaccinations; and (j) withholding of care and discrimination.

Regarding athletic participation and HIV transmission, prevention, and protection issues, the following factors are examples that NATA’s Board of Directors stated are appropriate in many settings to the decision-making process:

1. The current health of the athlete.
2. The nature and intensity of the athlete’s training.
3. The physiological effects of the athletic competition.
4. The potential risks of the infection being transmitted.
5. The desires of the athlete.
6. The administrative and legal needs of the competitive program. (p. 203)

With regards to the education of the physically active in “a rapidly changing medical, social, and legal environment” (p. 203), the dissemination of appropriate HIV-educational information is a professional responsibility of athletic trainers
and athletics administrators. Four specific areas of concern should be within a developed HIV-education and health care service program for athletes:

1. The risk of transmission or infection during competition.
2. The risk of transmission or infection generally.
3. The availability of HIV testing.
4. The availability of HBV testing and vaccinations. (p. 203)

The NATA Board of Directors feel that athletic trainers cannot be expected to practice law or medicine, but with respect to compliance with various guidelines and requirements, athletic trainers are expected to be practitioners of their chosen health care profession in athletics and fulfill all professional requirements mandated by a state's valid process for maintaining certification.

HIV: The Most Asked Questions

Hamel (1992) asked the following questions, with the knowledge that very few sports and medical organizations had considered HIV/AIDS and athletics prior to Magic Johnson's HIV-positive announcement on November 7, 1991:

1. Can HIV be spread through sports contact?
2. How much risk should be tolerated?
3. Should athletes be tested for HIV? (p. 140)

As a prior college athlete and champion basketball performer on all levels, Bill Walton (1994) discussed the need for the HIV testing issue to be quickly resolved by stating the following:

I was initially in favor of mandatory testing for HIV. In a simple world, I think that's what you would want. This is no simple world, nor is HIV a simple problem that will just go away . . . many questions arise: How are you going to administer the tests? Who are you going to test? How often are you going to test? What will the policy be if a player tests positive? If a player tests positive, what happens to his
contract? . . . HIV testing will be a very, very big issue and it should be. One of the most pressing issues of our time deserves decisive, but well-reasoned action (pp. 240-241).

4. Can exertion bring on symptoms? Brenner, Pang, and Shepard (1994) compiled case studies to support the hypothesis that athletes may be unusually prone to illness during strenuous training or competition. The investigators revealed through case studies that the stress of competition may make athletes temporarily more susceptible to infectious illness. It has been reported that the severity of pneumonia, hepatitis, and poliomyelitis are all augmented if exercise is performed during the infectious stage of the disease (Berg et al., 1971; Cowles, 1918; Hargreaves, 1948; Krinkler & Zilberg, 1966; Russell, 1947, 1949). It has yet to be reported that HIV infection is quickened as a result of strenuous exertion through training or competition. But the study by Brenner et al. (1994) concluded that strenuous exertion may compromise the immune system by stating that epidemiological data from animal and human studies suggest the following:

The intensity and duration of exercise, its timing relative to exposure to an infectious agent, and the type of infection all influence the effect of exercise on the immune response and vice versa . . . Intensive or exhausting physical activity immediately before or during the early stages of an infection may increase the severity and lethality of a disease. Alterations in immune surveillance associated with intensive training and competition include a reduction in lymphocyte proliferation rates, a reduction in NK cell activity, and low concentrations of immunoglobulins in serum and body secretions. (pp. 88-89)

Overall, regular moderate physical conditioning apparently improves immunosurveillance, enhances resistance, and decreases the duration of disease
symptoms, but intensive training impairs the immune response (Calabrese & LaPerriere, 1993).

5. Should HIV-positive players be excluded from sports?
6. What if a player tests positive?
7. Should the player’s medical results be kept confidential?
8. Do teammates and the competition have a right to know? (Hamel, 1992)
9. In reference to the above questions, where do you draw the line in the athletics setting? Is the line to be drawn at the professional sports level, or the college sports level, or in high school sports, or at the middle school sports programs level, or at the local YMCA and city recreational adult and youths sports programs level?

10. The American Academy of Pediatrics’ (AAP) Committee on Sports Medicine (1991) has responded with one additional question concerning HIV transmission in the athletics setting: Should the universal precautions recommended for allied health care workers (CDC, 1987) be used when handling athletes' blood and body fluids?

The AAP was the first medical organization to officially and specifically respond to the issue of HIV infection prevention and protection issues in sports health care. The AAP has formulated six recommendations and 11 precautions concerning HIV prevention and protection guidelines in the athletics setting. The risk of infection from skin exposure to blood of an athlete infected with HIV is currently unknown within sports medicine.

Hamel (1992) explained that, to date, no studies had assessed the number of athletes infected with HIV or documented a case of athlete-to-athlete HIV transmission. Nevertheless, the United States Olympic Committee released a report (Garl, 1991) on HIV and hepatitis B virus infection risks, listing by rank the riskiest sports. Due to the nature of competition, the bloodiest sports are the ones
with the greatest risk factors, such as boxing, wrestling, football, basketball, field and ice hockey, and soccer. Taekwondo and judo were also noted as sports among the most risky.

HIV Policy Statements/Regulations Reviewed

Arnold (1995) compared and contrasted the various policy statements and regulations issued by health care professions, the health care industry overall, and athletic governing bodies. The policy statements by medical associations and athletic governing bodies cover a wide range of issues, including the eligibility of infected athletes and the right of infected health care practitioners in the work environment. In contrast, federal regulations are limited solely to employees in the workplace.

Major deficiencies exist in reviewed documents, despite their comprehensive appearance. One example concerns employees exposed to body fluids and, therefore, entitled to free HIV testing, provided by the employer. Also, athletes who are exposed to body fluids are entitled to voluntary HIV testing, but it is unclear who should pay for this testing. However, the topic of AIDS testing for student athletic trainers is never mentioned. Arnold (1995) declared that, because student athletic trainers act as employees and agents of their institutions, it is logical to conclude that they should receive the same protection that federal regulation provide employees. Furthermore, this reasoning should be extended to the student athlete. Arnold (1995) concluded that athletic trainers and/or administrators should find these documents helpful in developing policies related to blood-borne pathogens in the workplace.

To date, there are no specific regulations mandating HIV/AIDS prevention and transmission education for athletes or student athletic trainers. The USOC (1991) and the AAP (1991) suggested that the athlete is entitled to some form of basic education relating to blood-borne pathogens. Blood-borne pathogen training
should be conducted during freshman orientation for all high school and college athletes, including their parents. OSHA (USDHHS, 1991) specifically requires employers to provide employees with periodic retraining that should be provided for all athletes and student athletic trainers (Arnold, 1995). Where OSHA’s regulations do not clearly apply in the athletics setting, position statements from other professional health care associations should be utilized to clarify and resolve any apparent discrepancies for enhanced HIV policy development and implementation.

The National Collegiate Athletic Association (NCAA, 1992; 1994) acknowledged in their handbook the extremely low risk of HIV transmission through sports, but recommended that athletics health care practitioners, who work directly with athletes, including team physicians and personal physicians, trainers, and coaches, follow the universal precautions recommended by the CDC (1991b; USDHHS, 1991). Likewise, the International Federation of Sports Medicine (IFSM) and the World Health Organization (1989; 1992b) released a consensus statement. According to the statement, “There is a possible very low risk of HIV transmission” between injured athletes with no justification for HIV testing of athletes suggested prior to participation in sporting events (1992b, p.1312).

Seltzer (1993) gives a commentary regarding the team physician’s role in educating athletes on HIV and AIDS. Team physicians are uniquely positioned to give effective counsel directly to athletes concerning the issues surrounding HIV transmission, both on and off the playing field.

Legalities of HIV/AIDS in Intercollegiate Athletics

Mitten (1994) cautioned that even with the very slight risks of HIV transmission in sports, team physicians and/or athletes’ personal physicians may encounter some problematic legal issues. Mandatory testing, exclusion of HIV-positive athletes from competition, and breaching the confidentiality of HIV-
positive athletes and/or support staff personnel within the athletics setting can lead to lawsuits. Therefore, gaining ample insight into potential problem areas can help administrators and health care practitioners develop and implement legally effective prevention policies.

HIV/AIDS Mandatory Testing

The primary justification for mandatory testing is to effectively curtail HIV transmission. Only two risk groups have been upheld in courts to permit mandatory testing: (a) convicted prostitutes [Matter of Juveniles of Washington, (1995); People of Illinois vs. Adams, (1992); Love vs. Superior Court of California, (1990)]; and (b) those individuals who have illegally possessed hypodermic needles [People of Illinois vs. C.S., (1991)]. Conversely, courts have invalidated mandatory HIV testing of people with a low risk of transmitting HIV or individuals who have an insignificant danger of HIV transmission [Glover vs. Eastern Nebraska Community Office of Retardation, (1989); and Doe vs. Roe, New York State, (1988)]. Courts invalidate mandatory testing of an athlete unless the testing is necessary to “the health and safety of the athlete,” [Schall vs. Tippecanoe County School, New York State, (1988)] or other athletes [Brooks vs. East Chambers Consolidated Independent School District, Texas, (1989)]. Therefore, because the risk of HIV transmission during athletic competition is extremely low, mandatory HIV testing of athletes is probably illegal. The court will balance an athlete’s right to privacy regarding his or her medical condition against the justification for HIV testing [Skinner vs. Railway Labor Executives Association, United States, (1989); & National Treasury Employers Union vs. Von Raab, United States, (1989)]. Currently, voluntary testing and counseling are the only legal and permissible methods for combating HIV transmission which does not infringe on the rights to privacy of athletes (Mitten, 1994).
HIV+: The Competition Question

The Americans with Disabilities Act (1990) and the Rehabilitation Act (1973) prohibit unjustified discrimination against HIV infected individuals or any other disabling condition. Federal laws prohibit excluding an HIV-positive athlete from a sports activity without a valid medical reason. According to a legal brief filed by the American Medical Association in 1987 (Mitten, 1994), the court held as follows:

Exclusion from an activity must be based on objective medical evidence considering the nature, duration, and severity of the risk of infection of others, the likelihood of potential harm to others and self, and the chance that reasonable accommodation will reduce any risk. (School Board of Nassau County, Florida vs. Arline, 1987)

Reasonable accommodations can reduce the risk of HIV transmission through communication and counseling, including (a) warning all athletes of the possible exposure to HIV infection during any contact sport (without naming the HIV-infected person); (b) removing bleeding athletes from competition as quickly as feasible; (c) following the CDC’s (1988) universal precautions regarding the handling of blood in the [athletics] workplace; (d) a physician should inform a known HIV-positive athlete that his or her participation in a contact sport may expose others to HIV infection; and (e) if the physician believes the risk of HIV transmission to be medically significant, the physician should discourage participation in the sport(s) and recommend an alternate sport (Seltzer, 1993).

HIV and Confidentiality in Athletics

Current law is unclear whether increased health risks from participation of the infected athlete(s) in various sports justifies excluding them from competition. Asymptomatic HIV infection may not be a medically valid reason to exclude an athlete from sports participation. Exclusion is permissible if the athlete is
medically unable to meet the specific physical demands of the sporting activity in question (Southeastern Community College versus Davis, 1979). Therefore, if an athlete is diagnosed as HIV-positive, a physician cannot disclose the athlete’s status to third parties, such as coaches or officials, without the athlete’s prior approval.

Ethically, physicians are prohibited from disclosing a patient’s medical condition to third parties without patient consent or legal requirement (AMA, 1994). Legally, physicians may be liable for unauthorized disclosure of an athlete’s HIV-positive status (Mitten, 1994). Team physicians, athletics administrators, and athletic trainers should work cooperatively to formulate HIV testing policies, sports participation guidelines, HIV prevention and protection techniques, and legal standards that appropriately balance the interests of HIV-positive athletes with the safety of other athletes within the athletics setting.

Calabrese (Hamel, 1992) feels that all of today’s concern about mandatory testing and athletics HIV transmission deflects attention from the real problem, which is “kids dying from sex and drugs” (p. 145). Seltzer (Hamel, 1992) feels that athletes need someone they can trust with personal questions concerning HIV and AIDS issues because they present such a complex and controversial public health dilemma in our society. LaPerriere (1992) put the issue into focus by saying, “This is going to be a long-term disease (HIV). I’m still not convinced people (in the athletics setting) have the full impact of what’s going on” (p.11).

Targeted Health Objective

One of USDHHS’s 22 national health objectives to be utilized as a specific focus area for this study within intercollegiate athletics in higher education is #18, HIV Infection, as it relates to college sports administration and athletic training health care education and services for student athletes (Healthy People 2000, USDHHS, 1990). The specific groups to be impacted are the intercollegiate
athletics administrators, athletic trainers, their respective support staffs, and athletes. The main focus is to enhance individual awareness within the athletics setting through responsible athletics health care practices concerning HIV transmission, prevention, and protection issues.

Wolitski and Keeling (1989) noted that reasonable concerns within intercollegiate athletics and sports management include the question of participation by athletes who are HIV-positive, with or without HIV-related disease symptoms. Also of concern should be the understanding and implementation of appropriate procedures, health care practices, and services to prevent or limit HIV transmission in the athletics setting. Primary areas for analytical focus should include athletic training, competition, training facilities, and the individual well-being of student athletes and athletics staff members.

Richard Keeling (1991), chair for the American College Health Association Task Force on HIV and AIDS, so clearly stated the following:

We do not have money, time, and energy to waste; let us not squander them by asking the same old questions over and over again. Let us work together, rather to answer the most important questions as they emerge. Just as we build community to support healthier behavior among students, let us build community among researchers, educators, and clinicians to generate connectedness and cooperation. Working together, we man find a powerful voice to bring global perspective to the people who make local decisions and allocate scarce resources.

There is much to do. It is time to move forward. (p. 53-54)

Ethically, morally, legally, and professionally, it is time to straightforwardly deal more effectively with the HIV and AIDS dilemma in public health and higher
education through an interconnectedness among all professionals concerned with enhanced wellness within the public health and education sectors.

It appears that HIV is a multifariously complex and genetically resilient viral organism. It is a medical science and socioeconomical phenomenon unique to the history of diseases. Medical science has studied this virus more than any other disease known to mankind, and HIV is being continually and rapidly transmitted throughout a politically and culturally diverse global population. It has now been over one and one-half decades since HIV was first medically observed and documented in the United States in the late 1970s. It requires a focused and interconnected biotechnical, political, social, and educational solution to halt HIV's apparent future transmission, and its economic and sociological impact, including the deterioration of the public health status within various global sociocultures throughout the remainder of the 1990s and well into the 21st century.

Organizational Structure and Leadership Characteristics in Athletics

Sports wellness health goals and administrative objectives for the year 2000 and beyond are best formulated by those individuals with responsibility for athletics administration and health care leadership within the intercollegiate athletics organizational structure. Naisbitt (1982) suggested that effective leaders must become facilitators of needed information and positive influence rather than mere conduits for giving out necessary daily directives. It can be concluded from his writing that, if an individual could develop the skills of facilitating people's interaction through enhanced critical thinking processes and regarding the personal health decision-making process, he or she could become an effective administrator and/or athletic health care leader.

Chelladurai and Saleh (1980) identified team and sports management as a unique organization (amateur and professional) with its own special features.
Compared to industry, a sports team spends more manhours in training than in actual job performance. Secondly, among team sports, there are winners and losers through competitive interaction. Lastly, the teams’ members work together for a relatively few months each year. Because of the nature of the job, competitive results influence the general public’s focus on the week-to-week progress of the individual sports teams and their performing members.

The last point gives a possible rationale for utilizing various peer-group members of a sports team to enhance attitude and behavior regarding improved personal health choices and practices. With the improvement of a team member’s personal health choices, the team’s internal health environment enhances the psychological and physiological well-being of its total membership. Additionally, the team’s role modeling and interactive outreach activities within the community can serve to enhance positive public health attitudes and behavior modifications.

In Cheatham’s (1992) review of related literature, it was found that the athletics program should be integrated into the educational mission of the college or university. Frey (1985) described the organizational role of the athletics department as “a specialized departmentalization characterized by multiple goals, fragmented decision-making, and decentralized or loose coupling of subunits” (p.188). Moreover, these subunits are viewed as independent entities allowing for decentralized decision-making processes. However, Blake (1989) found that colleges with exemplary athletics programs reported “tightly coupled patterns of administration” (p. 424) from the following: (a) athletics director to the president; (b) student athlete academic services; (c) health care services; (d) faculty representation; and (e) admission procedures. Thelin and Wiseman (1989) stated that an important ground rule for an effective program in athletics administration and sports management structure, which successfully incorporate lines of authority, responsibility, and accountability, reflect how an institution describes
the purposes of intercollegiate athletics within its “self-determined educational mission” in higher education.

Cheatham (1992) revealed that, today, the organizational structure within an athletics department requires “personnel diversification into specific areas of responsibility” (p. 167). Jensen (1988) found that the time has passed for an intercollegiate athletics director who performs all administrative and management duties. Following a national survey of all NCAA institutions, Acosta and Carpenter (1992) discovered that a two-person administration structure was the most common among NCAA divisions, except for Division III institutions, where single administrators were more common.

Cheatham (1992) specifically studied the athletics organizational structure and administrative views of university and athletics governing personnel in the Southwest Conference. The study’s population consisted of all eight SWC member institutions’ presidents, head athletics administrators, and senior women athletics administrators (N = 24). The study’s conclusion revealed that agreement exists between all university presidents and athletics administrative personnel concerning the structure and role of the athletics department as it evolves into a more “student-oriented club level” of competition. There may be a decrease in the number of competitive sports sponsored by the NCAA because of gender equity and economic pressures, unless additional funding resources are developed. Additionally, these two factors may lead to a much wider separation between the number of institutions participating on the NCAA Division I A level. An increase in the number of institutions competing at the Division II and III levels may realistically evolve since Division III institutions do not offer athletics scholarships to student athletes.
Intercollegiate Athletics Conference Structure

The subjects for this study included participants from the Southwest (Division 1A) and Southland (Division 1AA) Conferences. Therefore, it is appropriate to discuss the characteristics of an athletics conference which is regulated by the NCAA. Cheatham (1992) discussed the alignment of various NCAA universities with various regional conferences, with each maintaining its own staff, such as a commissioner and assistant commissioner, who conduct the business of the conference. All conference policies and procedures are the responsibility of each conference to develop and self-govern under mandated procedures and regulations established by the NCAA.

The National Collegiate Athletic Association (NCAA) is a national governing body for member institutions in higher education who are classified by divisions according to an institution's athletic prominence or desired level of competitiveness (Divisions I, II, or III). Smaller institutions may become members of the National Association of Intercollegiate Athletics (NAIA) or the National Junior College Athletic Association (NJCAA). These national athletic governing bodies establish and enforce the mandated regulations among member institutions concerning such areas as academic standards, recruiting, rules infractions, and amateurism, among others.

The Southwest Intercollegiate Athletic Conference (SWC) membership (1994) includes the following universities: Baylor University, Rice University, Southern Methodist University, Texas Christian University, Texas Tech University, Texas A & M University, University of Houston, and The University of Texas (Austin). The SWC was proposed on May 6, 1914, and held its first organizational meeting on December 8, 1914, consisting of nine charter institutions (Cheatham, 1992).
The Southland Athletic Conference (SLC) membership (1994) includes the following universities: Nicholls State, Northeast Louisiana, Northwestern State, McNeese State, Sam Houston State, Southwest Texas State, Stephen F. Austin State, The University of North Texas, The University of Texas at Arlington, and The University of Texas at San Antonio. The SLC was founded in 1963 by five presidents of five various small colleges in Texas, including Arkansas State College (Southland Conference, 1993-1994).

Similar administrative structure of the SWC and SLC consists of the following entities: (a) commissioner and staff; (b) athletics council; (c) board of athletics administrators; (d) administrative committee for women’s sports; and (e) ad hoc sports committee for men’s and women’s sports programs. The current organizational chart is as follows: (a) council’s membership (an institutional representative designated by the president of each university); (b) commissioner; (c) administration for institutional athletics; (d) director of competition; (e) assistant commissioner for men and women sports; (f) athletic committees for competition for men and women sports; (g) coaches committees for men and women sports; and (h) media relations director. As an example, the SWC Council has the ultimate authority for governance of the SWC, which allows one vote per member institution. The Board of Athletics Directors develop policy and procedures for men’s and women’s competition, which is proposed to the SWC Council for review and action.

Commission of Intercollegiate Athletics

In March 1991, the Knight Foundation’s Commission on Intercollegiate Athletics submitted to the public their initial report titled *Keeping Faith With the Student-Athlete: A New Model for Intercollegiate Athletics*. In support of a national sports reform movement, the commission proposed a sports wellness reform model titled *One-Plus-Three*, in which the *one* represented presidential
control directed towards the three, academic integrity, financial integrity, and independent certification. The commission believed that all the internal and external (sports wellness) problems and issues of college sports, with the term sports wellness used in its broadest sense, could be addressed responsibly within this model.

In March 1992, the Knight Foundation’s Commission submitted to the public their first follow-up report, titled *A Solid Start: A Report on Reform of Intercollegiate Athletics*. The One-Plus-Three model offers a ready structure for certification processes, and in the commission’s view, should be a simple process to validate institution by institution, with the presidential control directed with clear focus toward the academic and financial integrity of intercollegiate athletics’ purpose. The certification process for the NCAA will be utilized to bring about enhanced practitioners’ professional focus regarding integrity and credibility, if implemented, concerning the broad-based philosophical view of total sports wellness entities within intercollegiate athletics.

In March 1993, the Knight Foundation Commission on Intercollegiate Athletics released its final report, titled: *A New Beginning for a New Century: Intercollegiate Athletics in the United States*. In October 1989, the Trustees of the John S. and James L. Knight Foundation initiated an 18-month study, involving meetings and interviews with more than 90 respected athletes, educators, coaches, journalists, and administrators before submitting the March 1991 recommendations for reform in college athletics. The escalating public and academic demands for athletics reform is being matched by an accelerating reform movement, as college and university presidents, along with the NCAA leadership, take advantage of a “swelling chorus for reform,” to make a new beginning in college sports. The full effects of the recent reforms will be visible in higher education in the next century.
Serious issues and challenges lie ahead in college athletics. Issues such as cost and gender equity in all sports programs need to be straightforwardly, effectively, and successfully dealt with to prove that academic and financial integrity exists in college sports. The One-Plus-Three reform model utilized by academic and athletics officials should successfully tackle the many challenging problems in college sports, such as the following: (a) abuses in recruiting, the bane of the college coach’s life; (b) the compulsion of sports boosters to “meddle” in athletics decision-making processes; (c) the search for television revenues and the influence of the entertainment industry on intercollegiate athletics; (d) the relationships among high school, junior college, university, and professional sports; (e) the need to respect the dignity of the young men and women who represent the college or university on the playing field; (f) the obligation to further strengthen academic standards so that the profile of student-athletes matches that of other full-time undergraduates in admissions, academic progress, and graduation rates; and (g) the imperative to meet the needs of minority student-athletes, particularly those from backgrounds of inner-city or rural poverty.

Throughout the 1980s, athletics programs at many large colleges and universities engaged “in the midst of a kind of [financial] athletics arms race” (The Knight Foundation, 1993, p. 4). Athletics cost grew twice as fast as academic salaries and three times greater than inflation. This dilemma continues into the mid-1990s. The urge to be nationally competitive, no matter the expense, assumes its own dynamic entity. About 70% or more of Division 1A programs presently lose money, many operating deeply in red ink. It seems clear in review that athletics programs in the college setting need the same kind of financial restructuring currently being experienced by the larger academic community. If the issues and challenges are successfully met, the Knight Foundation
Commission’s One-Plus-Three reform model will be put to a severe test in the remaining decade of the 1990s and beyond.

The reform model’s certification process is the “capstone of the reform movement” and will remain one of the movement’s genuine legacies. The certification process “involves the entire campus community in a detailed examination of athletics policy issues . . . (which) embodies the standards and values befitting higher education” (Knight Foundation, 1993, p. 5).

Principles of Inservice Education/Certification Procedures

Effective and well developed in-service education and self-regulated certification programs generally conform to the principles and procedures outlined in a procedures manual titled Standards for Educational and Psychological Testing, published by the American Psychological Association (1983), and/or conform to the guidelines of the National Organization for Competency Assurance (1990). The most important question one should ask in regards to an effective certification model criterion is, “does the certification (or inservice education model) process appropriately evaluate, from a prioritized criteria base, specific knowledge and abilities which are required to successfully function” within intercollegiate athletics? It is said to be a valid process if the answer is yes. By selecting an HIV and AIDS certified health/sports medicine professional, the general public, college administrators, support staffs, and student-athletes are given assurance that sports wellness training professionals have met certain qualifications and criteria. These qualifications and criteria are designed to ensure that the professional is competent in the essential elements of athletics administration and/or sports management, athletic health care education and student-athlete health promotion regarding HIV and AIDS, and its transmission, prevention, and protection issues within the intercollegiate athletics setting.
CHAPTER III

PROCEDURES FOR COLLECTION OF DATA

The methods and procedures utilized during this investigative study are discussed in the following sections: Selection of the Methodology, Survey Method, Research Population, Research Instruments, and Procedure for the Analysis of Data.

Selection of the Methodology

The purpose of this descriptive study was to conduct an in-depth survey with SWC and SLC head athletics directors and head athletic trainers. The process of analyzing qualitative data required the search and identification of descriptive patterns from which the researcher was able to make generalizations. Using comparative analysis, the researcher sought to establish similarities and significant differences, as well as shared understandings between participants (Vierra & Pollock, 1988).

Within qualitative research, data compilation comes from individuals who are willing to respond and to share their knowledge, attitudes, and insights within a particular area in the higher education setting. The descriptive data collected from the participants are recorded, analyzed, classified, and categorized according to similarities and differences (Le Compte & Goetz, 1984).

Qualitative data collection has often been a major method of research within the social sciences, such as sociology, anthropology, and political science. Research has been conducted in the areas of educational administration related to academic and intercollegiate athletics (Knorr, 1991; Young, 1990; Yutzey, 1988;
Rider, 1989; Cheatham, 1992). According to Kirk and Miller (1986, p.17), qualitative research, as opposed to quantitative, “does not seek to measure an amount or degree of something, but only attempts to objectively analyze,” gaining a better understanding of what is being investigated through reported generalizations regarding the similarities and differences between participants in the study.

Patton (1990) discussed the concern for theory development, which is often marked in the literature regarding qualitative methods. The writings of Glaser and Strauss (1967); Dezin (1978); Lofland and Lofland (1984); Blumer (1969); Whyte (1984); and Becker (1970) represent a few well-known qualitative methodologists as they attempt, with major focus, the serious task of theory construction and verification. Patton (1990) revealed that what distinguishes the discussion of theory on qualitative methods is the emphasis on inductive strategies of theory development in contrast to theory generated by logical deduction from prioritized assumptions. Patton (1990) stated the following from his review of Glaser and Strauss (1967):

In contrasting grounded theory with logico-deductive theory and discussing and assessing their relative merits in ability to fit and work (predict, explain, and to be relevant), we have taken the position that the adequacy of a theory for sociology today can not be divorced from the process by which it is generated. Thus one canon for judging the usefulness of a theory is how it was generated—and we suggest that it is likely to be a better theory to the degree that it has been inductively developed from social research. (pp. 5-6)
Survey Method

The survey method was used in this qualitative investigation. The data collected were those relevant to the study based on respondents' perceptions of the survey questionnaire. The data collection consisted of three phases corresponding to the two basic research questions of this study. The aggregate response data were statistically analyzed and interpreted descriptively.

Survey research allows the researcher to study large or small populations by selecting samples from the population (Kerlinger, 1986). An advantage of survey research is the ability of the researcher to obtain a considerable amount of information representative of a larger population or of the entire population of a smaller, selected cluster sample. Uniformity is obtained by responses to the same questions. Of interest to the researcher are the relative frequencies, distributions, and relationships of designated sociological and psychological variables. Survey research is "best adapted to obtaining personal and social facts, beliefs, and attitudes" (Kerlinger, 1986, p. 386).

The instrument used in this study provided descriptive information from a total possible population within the SWC and SLC who could have agreed to participate and who served as the sample population within intercollegiate athletics (Division 1A and 1AA). A survey questionnaire was mailed with an accompanying letter to each participant who responded whether each would agree to become a study subject. Coding of each questionnaire was necessary in order to facilitate communication. The scheduling of data analysis depended upon a timely response by the study population. Various communication techniques were used to stimulate responses and to motivate respondents to participate cooperatively.
Research Population

The target population for this study consisted of all actively serving head athletics directors and head athletic trainers ($N = 34$) in the Southwest (SWC) and Southland (SLC) Conferences, representing Division 1A and 1AA intercollegiate athletics programs within higher education during the 1994 fall semester. The study population from the SWC and SLC served as a cluster unit representing the total population of head athletics directors and head athletic trainers within intercollegiate athletics in higher education throughout the United States.

Research Instruments

The instrument utilized for this descriptive study consisted of questionnaire sets designed to reflect various descriptive characteristics related to the research questions. The responses formed the set of data from a study population consisting of Division 1A and 1AA intercollegiate head athletics directors and head athletic trainers within the SWC and SLC.

The instrument was a collective and adapted replication regarding the investigative and published works of McConatha, Cinelli, Sankaran, and Carson (1992); Jones, Ryan, and Irvine (1992); Yarber (1989); the American College Health Association (1989); the American Association of Governing Boards of Universities and Colleges (1990); the American Medical Student Association (AMSA, 1988); and the United States Department of Health and Human Services (USDHHS, 1990, 1991).

The interrelated components of the selected instrument items are directly related to the measuring of knowledge, attitudes, and responses to criteria concerning HIV and AIDS prevention and protection issues in higher education and specifically related to the athletics setting. Administrators and faculty members, as well as students majoring in health education and physical education
and studying athletic training were the respondents to the various instrument items and recommendations collected, reviewed, and adapted for this study. The selected survey items within the various instruments and recommendations collected were adapted to survey head athletics directors and head athletic trainers in college sport programs within the SWC and SLC, utilizing a three-sectioned survey instrument (demographics, knowledge, and attitudes).

The study by McConatha et al. (1992) is representative of research that was reviewed and adapted for this study in intercollegiate athletics to assess knowledge and attitude levels of head directors and trainers. The McConatha et al. (1992) study focused on two important tasks regarding HIV and AIDS education in higher education: (a) the assessment of education majors' knowledge and attitudes about HIV and AIDS, and (b) the development of HIV/AIDS curriculum guidelines developed from prioritized criteria. The focus of the survey examined a variety of issues related to HIV and AIDS education including modes of transmission, risk behaviors, consequences, and prevention and control measure policies. Also examined were attitudes toward testing, confidentiality, providing support, interactions with HIV-infected persons, and comfort level with HIV and AIDS instruction and counseling. Therefore, the three designed sections of the developed survey questionnaire for this study addressed demographics, HIV and AIDS issues related to transmission and protection knowledge, along with the attitudes of head athletics directors and head athletic trainers, as athletics administrators and athletics health care practitioners, in intercollegiate athletics programs within the Southwest (Division 1A) and Southland (Division 1AA) Conferences.

Field Testing: Within the Southland Conference

The survey instrument developed for this study was utilized in a pilot study conducted within the Southland Conference (Division 1AA) in the fall of 1994.
The pilot study population (N = 14) within the SLC consisted of head athletics directors (n = 7) and head athletic trainers (n = 7). After reliability measures were satisfied for the survey instrument, all survey responses collected from the SLC participants were combined with the data collected from the survey participants within the SWC for final analysis and reporting. Both conferences are representatively similar in size regarding the number of academic institutions (SWC, 8 and SLC, 9) involved in NCAA athletics programs in higher education. One SLC institution declared itself as an independent, reducing SLC's total number to nine institutions.

Review and Adaptation of Survey Instruments

A representative survey instrument, among the various instruments reviewed and adapted for use in this study, is one developed by Jones et al. (1992) to effectively assess HIV-related knowledge and attitudes. Like the other surveying instruments reviewed, questionnaire items were selected by Jones et al. based on a thorough review of related literature on the topic of HIV and AIDS, along with a questionnaire from the Centers for Disease Control, and other reliable and valid instruments. Participants were not queried about information that was determined to be of common knowledge. As a representative example for establishing validity among the reviewed instruments, the questionnaire developed by Jones et al. was sent to a panel of experts and revised based on feedback. The panel members were individuals known to be involved in HIV-related field work or research. The instrument was then tested for test-retest reliability to determine stability or the consistency of repeated measures. Results were as follows: knowledge, r = .86 and attitudes, r = .80. Secondly, each question on the knowledge scale was examined to determine reliability. The McNemar Test was used to determine whether a significant proportion of subjects changed a response to an item from the pretest to the posttest. No significant differences existed
between time one and time two for the knowledge scale. Finally, a t test was performed between time one and time two since the attitude scale had a 5-point Likert-type format. No significant differences were found.

Additionally, the McConatha et al. (1992) instrument items were adapted from McConatha and Neutens (1987), the National Center for Health Statistics (Dawson, 1988), and the American School Health Association (Kerr, Allensworth, & Gayle, 1989). Furthermore, Yarber’s (1989) instrument items were developed in association with The American Alliance for Health, Physical Education, Recreation and Dance (AAHEPER&D, 1989), the AAHEPHR&D’s AIDS Education Project Materials Review Panel and the Project Advisory Board. Along with the CDC (1988), these groups reviewed the AAHEPER&D (William Yarber, ed., 1989) document for scientific accuracy, curricular approach, and multicultural sensitivity. The Project Materials Review Panel consisted of health education advisors, public school teachers, profession-preparation faculty in higher education, and parents. The Project Advisory Board included representatives of the American College of Preventive Medicine (ACPM); the American Home Economics Association (AHEA); the Association of Teacher Education; the National Association for Bilingual Education; the National Association of Biology Teachers (NABT); the National Coalition of Hispanic Health and Human Services Organization (NCHHIISO); the AAHE’s Division of Adolescent and School Health and the Center for Chronic Disease Prevention and Health Promotion; and the Centers for Disease Control (CDC, 1988).

Review Panel of Experts

In the validity development phase for the instrument used in this study, a review panel of experts was utilized to select the most appropriate items related to HIV, AIDS, and STD knowledge and attitude scales. The panel members were individuals known to be involved in HIV-related public health field work,
research, or sports medicine in higher education including athletics administrators and athletic training activities within the intercollegiate athletics setting. The instrument was a collective and adaptive replication regarding the investigative and published works of McConatha et al. (1992); McConatha and Neutens (1987); Jones et al. (1992); Yarber (1989); the American College Health Association (Keeling, 1989); The Association of Governing Boards for Universities and Colleges (AGB, 1990); the American Medical Student Association (AMSA, 1988); the American Academy of Pediatrics’ Committee on Sports Medicine and Fitness (AAP, 1991); and the United States Department of Health and Human Services (USDHHS 1989, 1990, 1991).

Establishment of Instrument Validity and Reliability

The survey instrument used in this study was revised and adapted to fit into the intercollegiate athletics setting. It was then tested for test-retest reliability to determine stability or the consistency of repeated measures. First, the Pearson Product-Moment Correlation Coefficient for reliability and stability was computed concerning the raw data obtained on the general knowledge scale for SLC trainers and directors. The results were as follows: knowledge, $r = .84$. Next, the Spearman Rank Order Correlation Coefficient (split-halves procedure) was used for measuring the general knowledge and attitude scales’ raw score reliability for the SLC trainers and SLC directors. The results were as follows: knowledge, $r = .83$ and attitudes, $r = .82$. The Kuder-Richardson 20 Formula for measuring general knowledge scale inter-item consistency was then calculated, yielding: $r = .80$. Finally, the t-distribution was used to determine if there were any significant differences between the split-halves analysis of collected data of the SLC trainers and directors concerning the tallied knowledge and attitude scales. There were no significant differences found at the .05 level of confidence.
Procedures for the Analysis of Data

The independent group means were statistically tested using an analysis of variance (ANOVA) to determine whether measurable differences in knowledge and attitudes concerning HIV and AIDS issues related to transmission, prevention, and protection are significant between head athletics directors and head athletic trainers within the Southwest (Division 1A) and Southland (Division 1AA) Conferences. Hinkle et al. (1988) wrote that ANOVA is often only the first test in analyzing a set of data. The procedures discussed in Hinkle et al. (1988, chap. 16) were developed to determine which means differ significantly after a significant F ratio or t test has been found in the ANOVA. These procedures are called post hoc multiple comparison tests. The authors recommend that when group sizes are unequal, the Tukey/Kramer (TK) Method is best utilized to identify which pairs of means differ following a significant F ratio in the ANOVA. If it is desired to isolate the exact subgroups which show significant differences at the .05 or .01 level of confidence, Q distribution analysis, as recommended by Hinkle et al. (1988, chap. 16), can be used cooperatively within the Tukey/Kramer (TK) Method. Results of the data analysis were reported according to each of the research questions designed for this study.

The collected data were tallied, statistically computed, analyzed, and interpreted in accordance with the procedures used by McConatha et al. (1992), Jones et al. (1992), Knorr (1991), Kerlinger (1986), and Hinkle et al. (1988). The survey's questions were weighted accordingly and their scores were ranked from the lowest to the highest performance. Low scores indicated minimal assessment application of knowledge and attitudes related to HIV and AIDS prevention and protection issues within intercollegiate athletics. High scores reflected greater levels of knowledge and positive attitudes within the athletics setting.
Upon receipt of completed surveys, the data were analyzed to allow for comparison of tallied responses. Descriptive statistics were used to interpret the data for each research question, when appropriate, through tabulation of the frequency of response and the percentage of response.

Tables were used containing the research questions and supporting indicators. The descriptive statistics applied included percentages and frequencies for survey sections 1, 2, and 3; and the mean, median, and mode to compute tallied responses on the Likert-type scale. Summary tables were constructed when necessary to feature analytical results of different variables used in the study.
CHAPTER IV

ANALYSIS OF DATA

The purpose of this study was to identify any significant differences between athletics directors and athletic trainers within the Southwest (Division 1A) and Southland (Division 1AA) Conferences concerning knowledge and attitude levels relating to HIV/AIDS transmission and prevention issues within the intercollegiate athletics setting. This was a qualitative and nonexperimental investigation to generate data from the research questions developed for the study.

Research Questions for the Study

For the purposes for this study, the following research questions were formulated utilizing the survey method:

1. Are there any significant differences between the knowledge of head athletics directors and head athletic trainers in the Southwest and Southland Conferences concerning HIV and AIDS issues related to transmission, prevention, and protection that affect the delivery of quality athlete health care services for athletes and staff members within Divisions 1A and 1AA intercollegiate athletics programs in the higher education setting?

2. Are there any significant differences between the attitudes of head athletics directors and head athletic trainers in the Southwest and Southland Conferences concerning HIV and AIDS issues related to transmission, prevention, and protection that affect the delivery of quality athlete health care services for athletes and staff members within Divisions 1A and 1AA intercollegiate athletics programs in the higher education setting?
Sample Population

The target population of this study consisted of all actively serving athletics directors and athletic trainers in the Southwest (SWC) and Southland (SLC) Conferences, representing Divisions 1A and 1AA intercollegiate athletics programs within higher education during the 1994 fall semester. Table 1 represents the number of directors and trainers within the Southwest and Southland Conferences who participated in this study.

Table 1

Survey Participants by Athletics Conference and Job Title

<table>
<thead>
<tr>
<th>Job Title/Conferences</th>
<th>SWC</th>
<th>SLC</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Athletics Directors</td>
<td>05</td>
<td>07</td>
<td>n = 12</td>
</tr>
<tr>
<td>Head Athletic Trainers</td>
<td>09</td>
<td>07</td>
<td>n = 16</td>
</tr>
<tr>
<td>TOTAL</td>
<td>n = 14</td>
<td>n = 14</td>
<td>N = 28</td>
</tr>
</tbody>
</table>

N = 28 represents 100% of the survey participants who agreed to participate in the study by signing and returning to the investigator an intent to participate form, professionally obligating each subject to mark and return the forwarded survey instrument through prepaid return postage. The two athletics conferences represented in the study had an equal number of participants (SWC, n = 14; & SLC, n = 14). The SWC’s participation rate was higher, with 14 of 16 accessible subjects completing surveys (87.5%) compared to the SLC’s participation rate of 14 of 18 (77.8%). Overall, N = 28 represents 82.4% (28 of 34) of accessible participants from the total population of directors and trainers within the SWC and SLC.
Regarding the Southwest Conference directors (SWC-D), 5 of 7 (71.4%) participated in the study. One of the SWC's institutions was without an acting head director for athletics during the time of the study. Regarding the Southland Conference directors (SLC-D), 7 of 9 (77.8%) participated in the study. Overall, of head athletics directors participating from the SWC and SLC (n = 12, representing 12 of 16 directors), 75% participated in this study.

Concerning the Southwest Conference trainers (SWC-T), 9 of 9 (100%) from 8 institutions, participated in the study. One of the SWC's institutions had a head trainer for each of the women's and men's athletics programs at the time of the survey. Regarding the Southland Conference trainers (SLC-T), 7 of 9 (77.8%) participated in the study. Overall, concerning head athletic trainers participating from the SWC and SLC (n = 16, representing 16 of 18 trainers), 89% participated in this study from the total population accessible.

Use of a Three-section Survey Instrument

The data for this study, as described in Table 2, were collected by using a three-sectioned survey instrument requiring 258 responses. The three-sectioned instrument consisted of (a) a demographics section (54 responses), (b) a general and specific knowledge section (103 responses), and (c) an attitude section (101 responses). The subjects were asked to set aside 15 to 20 minutes of uninterrupted time per section (45 to 60 minutes total time). The three sections were to be completed within a 3-to-5 day period. All surveys (N = 28) were returned to the investigator within a 30-day period during the 1994 fall semester. The data collected from the survey instruments were comprised of 7,224 responses from (N = 28) participating athletics directors and athletic trainers.
Table 2

Pictorial of the Study's Survey Instrument

<table>
<thead>
<tr>
<th>Section</th>
<th>Topic</th>
<th>Items</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section I</td>
<td>Demographics</td>
<td>54</td>
<td>1,512</td>
</tr>
<tr>
<td>Section II</td>
<td>Knowledge</td>
<td>103</td>
<td>2,884</td>
</tr>
<tr>
<td>Section III</td>
<td>Attitude</td>
<td>101</td>
<td>2,828</td>
</tr>
</tbody>
</table>

**TOTAL** | 258 | 7,224 | (N = 28)

Survey Section 1: Demographic Profiles Analysis

The demographic section of the survey instrument allowed for 54 responses from each subject participating in this study. Individual profiles were developed from the majority of responses to the items within the demographic section. The demographic profiles for head athletics directors and athletic trainers are reported in Tables 3, 4, and 5.

**Demographic Section Results**

**Personal Profiles**

Table 3 shows the profile for head athletics directors (n = 12) concerning items 1 through 6, reveals that 83% are employed by state universities; 92% are male; and 92% are 50 years of age or older. The youngest director in the study was 37 years old. The athletics directors were 100% white regarding ethnicity, and 76% were married. The median range regarding years of service as assistant athletics directors was 11 to 12 years, and the median range concerning years of service as head athletics directors was 4 to 5 years.
Comparatively, the profile for head athletic trainers (n = 16) in Table 3 shows that 75% are employed by state universities and 94% of the trainers are male. The median age span for the athletic trainers was 42 to 46 years. The youngest trainer in the study was 27 years old. The athletic trainers were 100% white regarding ethnicity, and 75% were married. The median range regarding years of service as assistant athletic trainers was 9 to 10 years. The median range concerning years of service as head athletic trainers was also 9 to 10 years.

**Education**

In Table 4 the profile concerning athletics directors indicates that 8% hold a bachelors degree, 75% have earned a masters degree, and two directors (17%) had earned a doctorate degree. Of the directors, 75% had a noncertified status regarding athletics administration certification, with some of the directors having
Table 4

Demographic Profile for Athletics Directors and Head Trainers (Items 7 - 9)

<table>
<thead>
<tr>
<th>Groups</th>
<th>Directors</th>
<th>Head Trainers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subgroups</td>
<td>(SWC-D and SLC-D)</td>
<td>(SWC-T and SLC-T)</td>
</tr>
<tr>
<td>Size</td>
<td>n = 12</td>
<td>n = 16</td>
</tr>
</tbody>
</table>

Descriptions:

7. Education
   a. B.S./B.A. 08% 19%
   b. M.S./M.A. 75% 81%
   c. Doctorate 17% 00%

8. Certification status:
   a. athletics administration: 08%
      (state regulation)
   b. athletics administration: 08%
      (professional group)
   c. athletics administration: 75%
      (noncertified)
   d. athletic training (NATA) 100%

9. Continuing education:
   a. none listed 100% 00%
   b. workshops
      at least (1) 00% 81%
      more than (1) 00% 31%
   c. inservice 00% 46%
   d. both (b) and (c) 00% 38%

received certification through either a professional group (8%) or as a result of state regulations (8%). Regarding continuing education related to HIV/AIDS issues, no directors (0%) indicated that they have been involved in any type of continuing education activities concerning HIV/AIDS education awareness programming, such as special classes, workshops, or inservice education training seminars.

In a comparison of the profile characteristics of head athletic trainers (Table 4), 19% have earned a bachelors degree, whereas 81% have earned a masters
degree. No athletic trainers in the study had earned a doctorate. Of the athletic
trainers, 100% have been certified through their professional organization
(National Athletic Trainers' Association). Regarding continuing education, 81%
of the athletic trainers have attended at least one workshop, and 31% have
attended more than one workshop sponsored by NATA through state, regional, or
national level conferences. Of the trainers, 46% have also received inservice
education concerning HIV and AIDS prevention education, and 38% have
attended workshops and inservice education seminars.

Sources of HIV/AIDS Information

Table 5 indicates where HIV and AIDS information and related educational
materials are most often received and reviewed. Item 10 gives the primary source
for HIV-related information, broken down into first, second, and third primary
sources.

The athletics directors’ first primary source was utilizing newspapers
(67%), followed secondly by television and radio programming (44%). As a third
primary source, the athletic trainers responded that medical journals, professional
literature, and colleagues (25%, respectively) were most utilized by the subgroup.
Comparatively, the athletic trainers’ first primary source for HIV and AIDS
information (Table 5) was attending workshops (68%), followed secondly by use
of medical journals (31%). The trainers’ third primary source was professional
literature (13%), newspapers (13%), and television and radio special programming
(13%).

Item 11 (Table 5) gives secondary information sources for HIV-related
information which is broken down into first, second, and third source categories.
The athletics directors’ first choice was pamphlets and books (25%), followed
secondly through professional literature (25%), and third, through the
programming mediums of television and radio (25%). In comparison, athletic
Table 5

Demographic Profile for Athletics Directors and Head Trainers (Items 10-14)

<table>
<thead>
<tr>
<th>Groups</th>
<th>Directors</th>
<th>Head Trainers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subgroups</td>
<td>(SWC-D and SLC-D)</td>
<td>(SWC-T and SLC-T)</td>
</tr>
<tr>
<td>Size</td>
<td>n = 12</td>
<td>n = 16 (N = 28)</td>
</tr>
</tbody>
</table>

Descriptions:

10. Primary source of HIV/AIDS information
   a. first source 67% newspapers 68% workshops
   b. second source 44% tv/radio 31% medical journals
   c. third source 25% medical journals 13% professional
                   25% professional 13% newspapers
                   25% colleagues 13% tv/radio

11. Secondary source of HIV/AIDS information
    a. first source 25% pamphlets/books 31% professional
    b. second source 25% professional 25% pamphlets/books
    c. third source 25% tv/radio 19% workshops

12. Preferred sources of HIV/AIDS information
    a. first choice 25% workshops 57% workshops
    b. second choice 25% tv/radio
    c. third choice 25% professional 38% professional
                   33% pamphlets 31% pamphlets

13. Community/campus resource choices
    a. first choice 42% athletic trainer 44% team physician
    b. second choice 08% campus health center
                      08% team physician
                      08% county health dept.
                      08% local blood center
                      08% athletic training staff
                      25% county health
                      19% team physician
                      19% campus health center

14. Know HIV-infected individual(s) within/outside workplace
    within: no, 100% within: yes, 13%
    outside: yes, 17% outside: yes, 25%
trainers marked their secondary information sources as first, professional literature (31%); second, pamphlets and brochures (25%); and third, workshops (19%).

Item 12 (Table 5) asked the athletics directors and athletic trainers to record their preferred sources for HIV and AIDS education information and related materials. Athletics directors' first choice was workshops (25%) and television and radio programming, followed secondly by reading professional literature (25%) and utilizing specially printed pamphlets and brochures (33%). In comparison, athletic trainers' first choice was attending HIV and AIDS workshops (57%), followed secondly by reading professional literature (38%), and third by securing specially printed pamphlets and brochures (31%).

Item 13 (Table 5) deals with the choices for community/campus-based resources for athletics directors and athletic trainers. The athletics directors' first choice was to utilize the athletic training staff members (42%) because they are more accessible and more knowageable. The directors' second choices within the community/campus environment were campus health centers (8%), team's physician (8%), county health departments (8%), local blood centers (8%), and the athletic training staff members (8%). In contrast, the athletic trainers' first choice within the community/campus environment was the team's physician(s) (44%), followed by county health departments (25%), campus health centers (19%), and team's physician(s) (19%).

Knowledge of HIV-Infected Individuals in/out of the Athletics Workplace

Item 14 in Table 5 records athletics directors' and trainers' responses when asked if they professionally knew HIV-infected individuals within their respective athletics workplaces. The directors responded 100% that they did not know any HIV-positive persons from within their athletics workplace. Of the athletic
trainers, 13% responded that they knew someone HIV-positive from within their individual professional workplaces.

The athletics directors and trainers were also asked if they personally know someone that is HIV-positive outside of their professional workplace. Seventeen percent of the athletics directors and 25% of the trainers responded that they personally know someone who is HIV-positive outside their respective athletics workplaces.

Community-Related Service

The athletics directors and head athletic trainers also revealed the degree to which they are involved in community-related service work as a professional. Forty-two percent of the head directors and 31% of the head athletic trainers responded that they were involved within their respective communities professionally within the past 3 years. Athletics directors were involved in activities within local civic clubs, whereas athletic trainers were involved in civic clubs, church-related activities, and youth sports teams activities.

Athletics Workplace Regarding HIV Transmission Protection Policies

Tables 6 and 7 outline the number and percentage of athletics directors and trainers, including their respective athletics departments, describing who are fully aware of and to what extent they fully comply with various professional groups' published HIV transmission prevention and protection regulations and/or recommended guidelines and policies. Four items are listed and described in Table 6 and three items are listed and described in Table 7 regarding access to each professional or regulatory group's published material by athletics directors and athletic trainers. The information described is available to the general public and can be obtained, reviewed, and specifically adapted for policy implementation by athletics department administrators who have responsibilities for enhanced
Table 6

Athletics Directors' and Trainers' Level of Awareness and Their Respective Departments' Compliance With Professional Groups' HIV Transmission Protection Regulations and/or Recommendations, Guidelines, and Policies (Items 1a - 4b)

<table>
<thead>
<tr>
<th>Group Description of items:</th>
<th>Directors (SWC-D and SLC-D)</th>
<th>Head Trainers (SWC-T and SLC-T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n = 12)</td>
<td>(n = 16)</td>
<td></td>
</tr>
<tr>
<td>Item 1a: Are there established departmental HIV and AIDS education &amp; service policies? yes, 67% (n = 8)</td>
<td>yes, 38% (n = 6)</td>
<td></td>
</tr>
<tr>
<td>Item 1b: Are established HIV policies deemed adequate by you? yes, 25% (n = 3)</td>
<td>yes, 31% (n = 5)</td>
<td></td>
</tr>
<tr>
<td>Item 2a: Is there an OSHA recommended HIV/AIDS health care service plan on file and accessible to student athletes? yes, 50% (n = 6)</td>
<td>yes, 31% (n = 5)</td>
<td></td>
</tr>
<tr>
<td>Item 2b: Is the athletics department plan on file deemed adequate by you? yes, 42% (n = 5)</td>
<td>yes, 19% (n = 3)</td>
<td></td>
</tr>
<tr>
<td>Item 3a: Are you fully aware of OSHA's HIV transmission prevention regulations? yes, 33% (n = 4)</td>
<td>yes, 94% (n = 15)</td>
<td></td>
</tr>
<tr>
<td>Item 3b: Does your athletics department fully comply with OSHA's regulations? Yes, 33% (n = 4)</td>
<td>yes, 63% (n = 10)</td>
<td></td>
</tr>
<tr>
<td>Item 4a: Are you fully aware of the AAP's HIV prevention recommendations? yes, 25% (n = 3)</td>
<td>yes, 38% (n = 6)</td>
<td></td>
</tr>
<tr>
<td>Item 4b: Does your athletics department fully comply with AAP's recommendations? yes, 17% (n = 2)</td>
<td>yes, 38% (n = 6)</td>
<td></td>
</tr>
</tbody>
</table>

Where N = 28: SWC-D/SLC-D, (n = 12) and SWC-T/SLC-T, (n = 16).
student athlete health care services. The printed information is directly related to
HIV and AIDS education awareness concerning HIV transmission, prevention, and
protection service regulations, guidelines, and/or policies for intercollegiate
athletics policy and program development.

Established HIV/AIDS Education and Health Care Service Policies

As working professionals in the intercollegiate athletics workplace, the two
groups were asked if they worked in athletics departments with established HIV
and AIDS education and health care service policies (Table 6). Of the athletics
directors, 67% responded yes to the inquiry, with 38% of the athletic trainers’
group responding yes. Related to the same subject area, the two groups were
asked if the established HIV and AIDS education and health care service
policies were deemed “adequate.” Of the athletics directors, 25% responded yes,
with the trainers’ group responding yes 31% of the time (Table 6).

HIV/AIDS Health Care Service Plan on File and Accessible

The participants were asked if they worked in an athletics department with
an established HIV/AIDS education/health care service “plan on file and
accessible” to student athletes and department personnel (Table 6). Fifty percent
of the athletics directors responded yes, whereas 31% of the athletic trainers’
group responded yes. When asked if the established education/health care service
plan on file and accessible was deemed “adequate” (Table 6), 42% of the athletics
directors responded yes, and 19% of the athletic trainers’ group responded yes.

Awareness of OSHA’s Regulations

Concerning OSHA’s HIV-transmission prevention and protection
regulations, when the participants were asked if they were “fully aware” of the
written regulations, 33% of the athletics directors responded yes, and 94% of the
athletic trainers responded yes (Table 6). When the participants were asked if
their individual athletics department “fully complies” with each OSHA HIV issue
Table 7

Athletics Directors’ and Trainers’ Level of Awareness and Their Respective Departments’ Compliance With Professional Groups’ HIV Transmission Protection Regulations and/or Recommendations, Guidelines, and Policies (Items 5a - 7b)

<table>
<thead>
<tr>
<th>Groups</th>
<th>Directors (SWC-D and SLC-D) (n = 12)</th>
<th>Head Trainers (SWC-T and SLC-T) (n = 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 5a: Are you fully aware of the ACHA’s campus and athletics setting HIV transmission prevention guidelines?</td>
<td>yes, 8% (n = 1)</td>
<td>yes, 50% (n = 8)</td>
</tr>
<tr>
<td>Item 5b: Does your athletics department fully comply with ACHA’s guidelines?</td>
<td>yes, 8% (n = 1)</td>
<td>yes, 25% (n = 4)</td>
</tr>
<tr>
<td>Item 6a: Are you fully aware of the USD-HHS’s (CDC’s) HIV protection guidelines?</td>
<td>yes, 8% (n = 1)</td>
<td>yes, 31% (n = 5)</td>
</tr>
<tr>
<td>Item 6b: Does your athletics department fully comply with USDHHS’s (CDC’s) HIV transmission protection guidelines?</td>
<td>yes, 8% (n = 1)</td>
<td>yes, 25% (n = 4)</td>
</tr>
<tr>
<td>Item 7a: Are you fully aware of the AGB’s recommended HIV transmission prevention and protection guidelines?</td>
<td>yes, 0.0% (n = 0)</td>
<td>yes, 19% (n = 3)</td>
</tr>
<tr>
<td>Item 7b: Does your athletics department fully comply with the AGB’s recommended HIV transmission prevention guidelines?</td>
<td>(not applicable) (n = 0)</td>
<td>yes, 13% (n = 2)</td>
</tr>
</tbody>
</table>

Whereas N = 28: SWC-D/SLC-D, (n = 12); and SWC-T/SLC-T, (n = 16).

related to transmission, prevention, and protection guideline, 33% of the athletics directors responded yes, and 63% of the athletic trainers’ group responded yes (Table 6).
Awareness of AAP’s Committee on Sports Medicine Recommendations

The study’s participants were asked if they were each “fully aware” of the American Academy of Pediatrics Committee on Sports Medicine’s suggested recommendations for HIV issues related to treatment, prevention, and protection within the athletics setting (Table 6). Of the athletics directors, 25% responded yes to the inquiry, whereas 38% of the athletic trainers’ group responded yes. When the participants were asked if they worked in an athletics department that “fully complied” with the AAP’s recommendations, 17% of the athletics directors marked yes, and 38% of the athletic trainers responded yes (Table 6).

Awareness of ACHA’s HIV Transmission Prevention Guidelines in Athletics

The subjects in both groups were asked if they were “fully aware” of the American College Health Association’s recommendations and guidelines for HIV issues related to transmission, prevention, and protection within the athletics setting (Table 7). Of the athletics directors, 8% responded yes, and 50% of the athletic trainers responded yes. When the groups’ members were asked if they each worked in an athletics department which “fully complies” to the ACHA’s suggested recommendations and guidelines regarding HIV transmission and prevention issues within the athletics setting, 8% of the athletics directors responded yes, and 25% of the athletic trainers answered yes (Table 7).

Awareness of USDHHS HIV Guidelines

The groups’ members were asked if they were “fully aware” of the USDHHS’s recommended HIV transmission and protection guidelines, which also includes the CDC’s recommended procedures for effectively handling blood-borne pathogens and other body fluids within the athletics workplace (Table 7). Of the athletics directors, 8% responded yes, with 31% of the athletic trainers responding yes. Next, each group’s participant was asked if he/she worked in an athletics department that “fully complies” with the USDHHS’s HIV guidelines within the
athletics setting. Of the athletics directors, 8% responded yes, and 25% of the
athletic trainers answered yes (Table 7).

**Awareness of the American Governing Board for Universities’ (AGB) Guidelines**

Lastly, the subjects were asked if they were “fully aware” of the AGB’s
recommended policies and guidelines for the campus and the athletics setting
(Table 7). Not a single athletics director (0%) marked yes to the inquiry; 13% of
the athletic trainers responded yes to the same inquiry. Regarding the athletic
trainers’ response as to whether their respective athletics department “fully
complied” with the AGB’s recommended policies and guidelines, 19% responded
yes (Table 7).

**Summary of Profile Similarities Between Directors and Trainers**

**Gender, ethnicity, and marital status.** Basically, the two groups’ profiles
were relatively similar concerning a majority of the descriptive items within the
demographic scale. They closely matched concerning gender, ethnicity, and
marital status.

**State employment, prior experience, and education.** The two groups’
profiles were also similar concerning the type of institution employed and the
years of experience gained as assistants within their respective areas of expertise.
They closely matched regarding educational levels of achievement through earning
their M.A./M.S. degrees.

**Experience and age of head administrators.** The two groups’ profiles
developed in this study were marginally similar concerning the number of years of
service as head administrators within their respective fields of expertise, with the
head trainers having worked 5 to 6 years longer as head athletic health care
practitioners than had the athletics directors as head department administrators
within the athletics setting. The profiles show that the athletics directors are a few
years older (9+ years) than the head athletic trainers.
Non-awareness of various professional groups’ HIV transmission, prevention, and protection guidelines and recommendations. The developed profiles of the two groups in this study closely matched, showing that neither group is sufficiently aware of the availability and usefulness of various professional groups’ published HIV transmission, prevention, and protection guidelines and recommendations specifically for the athletics setting. The various professional groups inquired about in the survey items were (a) the American College Health Association (ACHA), (b) the Association of Governing Boards of Universities and Colleges (AGB), (c) American Academy of Pediatrics’ Committee on Sports Medicine and Fitness (AAP), and (d) the United States Department of Health and Human Services or its Centers for Disease Control.

Summary of Profile Differences Between Directors and Trainers

Established athletics department HIV and AIDS education and service policies. The athletics director’s profile differs from the trainer’s profile in that the majority of directors (67%) stated that they work in an athletics setting that has established departmental HIV and AIDS education and service policies. The average profile for an athletic trainer does not share the declaration of fact regarding established departmental HIV transmission and service policies for athletes and staff members. Only 38% of the trainers responded that they worked in an athletics setting with established policies regarding the control of HIV transmissions and health care protection services for athletes. Only 25% of the directors and 31% of the trainers perceived the implemented policies as being adequate. The directors (50%) and trainers (31%) perceived that their departments comply with an OSHA-regulated HIV/AIDS health care service plan required to be on file and accessible to department personnel, whereas only 42% of the directors and 19% of the trainers felt that their department’s service plan is adequate.
State/professional certification. Major differences in the two groups’ profiles were observed in the areas of certification and continuing education. The athletic trainers are certified by the state in which they practice athletic training and by their professional organization, the National Athletic Trainers’ Association Board of Certification. None of the athletics directors have obtained any type of professional certification except that 2 of 12 directors (17%) have earned a doctorate in higher education. There are no known professional or state requirements that head or assistant athletics administrators become professionally certified within the field of athletics administration. No known avenue(s) of opportunity for professional certification exist beyond earning a doctorate in higher education administration, with a minor area of study in athletics administration or sports management, or in any similar combinations in related areas of study in intercollegiate athletics administration.

Continuing education. A major difference could be observed between the two groups’ profiles regarding efforts made to become involved in continuing education programming activities related to HIV/AIDS issues in the higher education setting. No athletics directors have attended any kind of educational workshop, seminar, or special noncredit classes to enhance their knowledge and understanding about HIV transmission, prevention, and protection issues within the athletics setting. Eighty-one percent of the athletic trainers have attended at least one workshop, with 31% attending two or more workshops concerning HIV/AIDS issues in college sports programs. Another 46% of the trainers have attended various kinds of inservice education programs regarding the HIV/AIDS issue in college sports. Thirty-eight percent of the trainers have attended both workshops and inservice education programs or seminars related to HIV and AIDS education awareness programming.
Primary, secondary and preferred resources. There was an observed
difference in the primary information sources utilized by head athletics directors
and trainers in this study. A majority of the directors use the daily newspaper
and/or television/radio programming compared to the trainers’ choices being
attendance at NATA workshops (at the state, regional, and national level) and
reading medical journals. The two groups utilized the same secondary sources of
information related to the HIV/AIDS dilemma: pamphlets, books, and articles in
professional literature. The two groups also agreed that their first preferred source
of information related to HIV and AIDS topics was to attend workshops (directors,
25%; trainers 57%). The first choice for directors was television and radio
programming (25%). Second and third choices for both groups were the
reviewing of professional literature and pamphlets.

Community/campus resources. Regarding the utilization of
community/campus resource information, athletics directors seek out opinions
from their athletic trainers’ staff and campus health center personnel, whereas the
training staff seeks expert information from team physician(s) and county health
department personnel.

Compliance with OSHA’s HIV transmission regulations. The athletics
directors’ and athletic trainers’ profiles differed concerning the issue of being fully
aware of the specific regulations within OSHA’s HIV transmission regulations for
the workplace. Ninety-four percent of the trainers stated they are fully aware of
OSHA’s regulations, while only 33% of the directors state that they are similarly
knowledgeable. Their profiles also differed regarding whether they feel that they
work in an environment within the athletics setting that fully complies with
OSHA’s workplace regulations. The directors’ profile shows that they do not feel
that they work in an OSHA-regulated workplace concerning HIV transmission,
prevention, and protection control issues, whereas the trainers’ profile reveals that
they feel they do work in an OSHA-regulated workplace as health care practitioners within the athletics setting.

Survey Section II: Knowledge Scale Analysis

Research Question 1

The knowledge scale items in the survey instrument, Section 2, were utilized to collect data pertinent to Research Question 1, which asks: Are there any significant differences between the knowledge of athletics directors and head athletic trainers in the Southwest Conference (Division 1A) and the Southland Conference (Division 1AA) concerning HIV and AIDS issues related to transmission, prevention, and protection affecting the delivery of quality athlete health care services for athletes and staff members within intercollegiate athletics programs?

Knowledge Scale Topics

Knowledge scale items concerned HIV and AIDS transmission, prevention, and protection issues within the athletics setting. Inquiry revealed levels of knowledge among the subjects concerning the following topics: susceptibility to HIV; symptomatology; modes and extent of HIV transmission (nationally and internationally); HIV and AIDS nomenclature; new statistical trends in HIV transmission among various groups; associated risk behaviors; consequences; prevention and protection measures; effectiveness of HIV awareness education; and medical science research effectiveness. Additional inquiry was made concerning topics related to the severity of HIV/AIDS as a public health dilemma; drugs used in treating HIV infection; HIV-vaccine development progress; HIV testing and blood collection/donation related issues; HIV and its relationship to STDs and HBV; resources used to combat increased HIV infections; HIV and
AIDS progression characteristics; annual infections and deaths related to HIV and AIDS; and HIV transmission within the athletics setting.

Rationale for Small Group Analysis

The following is a quantitative analysis of the survey instrument's Section 2 data compiled from intercollegiate athletics directors (SWC-D/SLC-D, n = 12) and head athletic trainers (SWC-T/SLC-T, n = 16), where N = 28. Section 2 of the survey instrument contained 103 items and resulted in a total of 2,884 responses for N = 28 participants. All responses were scored and tallied, with percentages for each group's response calculated for each question in the knowledge scale section of the survey. The individual mean score for each subgroup was determined for further analysis between the two population groups.

For small sample sizes, the sampling distribution of a statistic departs appreciably from the normal distribution. Therefore, when using samples of less than 30, it is advisable, according to Thomas and Young (1991), to use the theoretical sampling distribution referred to as the student's t distribution. The t distribution is symmetrical like the normal distribution curve, but is slightly more platykurtic, with the tails of the curve being thicker than the normal curve. More importantly, there is not one standard t distribution; but a different t distribution exists for each different number of degrees of freedom. Therefore, as the number of degrees of freedom increases, the t distribution gets closer to the ideal normal model.

Hinkle et al. (1988) stated that the F distribution, named for R.A. Fisher, is an important distribution in inferential statistics. Like the t distribution, the Fdistribution is made up of a family of distributions. The specific F distribution used in testing the hypothesis is determined by two degrees of freedom values, one associated with each of the two estimates of variance between the two populations within the study (athletics directors and athletic trainers).
The F distribution (F ratio) was used in this study as the parametric measure of two independent samples concerning the analysis of variance (ANOVA). Hinkle et al. (1988) stated the following:

In testing the null hypothesis $H_0: U_1 = U_2$ for independent samples, the researcher can use either the t-test or ANOVA; the two procedures are equivalent for testing a hypothesis. For testing $H_0: U_1 = U_2$ versus $H_a: U_1$ (is not equal) to $U_2$, $F = t^2$. That is ANOVA and the t-test for independent samples give the identical results. (pp. 349, 351)

Furthermore: $t^2 = F$ and $t_{cv}^2 = F_{cv}$, both at the .05 and .01 level of confidence for $N = 28$, $df = 26$, whereas $cv$ = critical value.

Table 8 shows the results of using the F distribution to isolate for a significant F ratio difference between the knowledge scale mean scores of athletics directors versus head athletic trainers within the SWC and SLC. The results confirm that there was a significant F ratio difference computed at both the .05 and .01 levels of confidence regarding the SWC and SLC athletic trainers' knowledge scale mean scores ($n = 16$) when compared to the SWC and SLC athletics directors' knowledge scale mean scores ($n = 12$). The mean scores for the trainers and directors were 73.59 and 63.7, respectively. The computed F ratio equaled 11.83 and was found to be critically larger than the $F_{cv}$ at the .05 level of confidence, which equaled 4.23 and also was found to be critically larger than the $F_{cv}$ at the .01 level of confidence, which calculated to be 7.72 where $N = 28$, and the degrees of freedom reflecting $df = 26$.

ANOVA is often only the first test in analyzing a set of data. The procedures discussed in Hinkle et al. (1988, chap. 16) were developed to determine which means differ significantly after a significant F ratio or t test has been found in the ANOVA. These procedures are called post hoc multiple comparison tests.
Table 8

Summary of Knowledge Scale ANOVA for a Significant F Ratio

<table>
<thead>
<tr>
<th>Groups</th>
<th>Head Trainers (SWC-T and SLC-T) (n = 16)</th>
<th>Versus Directors (SWC-D and SLC-D) (n = 12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge-Scale Groups' Means:</td>
<td>73.59 (Difference = 9.89)</td>
<td>63.70</td>
</tr>
<tr>
<td>F ratio = 11.83*</td>
<td>&gt; Fcv = 4.23 at the .05 level and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; Fcv = 7.72 at the .01 level</td>
<td></td>
</tr>
</tbody>
</table>

*Significant F-ratio difference at the .05 and .01 levels of confidence where N = 28, df = 26.

The Newman-Keuls method is recommended by Hinkle et al. (1988) to be used to identify which pairs of means differ following a significant F ratio in the ANOVA when group sizes are equal. When the group sizes are unequal, as in this study, the Tukey/Kramer (TK) method is suggested by Hinkle et al. (1988). When there is found to be a significant F ratio, we may desire to know whether the significant F ratio is due to differences between pairs of means or perhaps to some more complex combination of means.

Use of the Q Distribution Computation With the Tukey/Kramer Method

A less conservative procedure is to use one of the post hoc multiple comparison tests that uses the studentized range (Q) distributions as a sampling distribution. The Tukey/Kramer method for unequal group sizes all use the Q distributions as the sampling distributions. The Q distributions were developed to determine the minimum difference between the largest and smallest means in a set of sample means that is necessary to support the significant difference found though the F ratio. The Q distributions are analogous to the F distributions...
Table 9

Data for the Tukey/Kramer (TK) Method Utilizing a Q Distribution

<table>
<thead>
<tr>
<th>Subgroups</th>
<th>SWC-Trainers</th>
<th>SLC-Trainers</th>
<th>SWC-Directors</th>
<th>SLC-Directors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q-number</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>Means</strong></td>
<td>71.11</td>
<td>76.07</td>
<td>63.90</td>
<td>63.50</td>
</tr>
<tr>
<td><strong>n</strong></td>
<td>9</td>
<td>7</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>

Qcv = 3.90 at the .05 level where N = 28, r = 4, and df = 24.

Table 10

Summary ANOVA for Tukey/Kramer (TK) Method

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Fcv</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>513.81</td>
<td>3</td>
<td>171.27</td>
<td>14.86*</td>
<td>3.01 cv (.05)</td>
</tr>
<tr>
<td>Within</td>
<td>276.55</td>
<td>24</td>
<td>11.52</td>
<td></td>
<td>4.72 cv (.01)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>790.36</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at the .05 and .01 levels of confidence where N = 28 with df = 24.

(Hinkle et al., 1988). Table 11 shows the result of the calculation of Q statistic using the Tukey/Kramer (TK) method for significance.

Table 9 shows the data for the Tukey/Kramer (TK) method of comparison using a Q distribution. The two primary study groups were divided into subgroups yielding four levels of the independent variable and the dependent variable represented by a knowledge scale mean average for each subgroup: (1) SWC-Trainers, (2) SLC-Trainers, (3) SWC-Directors, and (4) SLC-Directors. The ANOVA was computed with results shown in Table 10. Since the critical value
### Table 11

**Summary of the Q Statistic Utilizing the TK Method for Significance**

<table>
<thead>
<tr>
<th>Subgroups</th>
<th>Q-Group</th>
<th>Pairwise Comparisons</th>
<th>Mean vs. Mean</th>
<th>n vs. n</th>
<th>Q</th>
<th>Qcv</th>
</tr>
</thead>
<tbody>
<tr>
<td>(N = 28)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. SWC-T</td>
<td>(1) Q 1-2</td>
<td>71.11 vs. 76.07</td>
<td>9 vs. 7</td>
<td>-4.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) Q 1-3</td>
<td>71.11 vs. 63.90</td>
<td>9 vs. 5</td>
<td>3.81**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3) Q 1-4</td>
<td>71.11 vs. 63.50</td>
<td>9 vs. 7</td>
<td>4.38*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. SLC-T</td>
<td>(4) Q 2-3</td>
<td>76.07 vs. 63.90</td>
<td>7 vs. 5</td>
<td>6.12**</td>
<td></td>
<td>4.91 at .01</td>
</tr>
<tr>
<td></td>
<td>(5) Q 2-4</td>
<td>76.07 vs. 63.50</td>
<td>7 vs. 7</td>
<td>6.83**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. SWC-D</td>
<td>(6) Q 3-4</td>
<td>63.90 vs 63.50</td>
<td>5 vs 7</td>
<td>0.096</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at the .05 level. **Significant at the .01 level, and where N = 28, r = 4, and df = 24.

The calculated values of the Q statistic for the TK method are found in Table 11. The critical value for the Qs is 3.90 at the .05 level of confidence and 4.91 at the .01 level of confidence, with r = 4 and df = 24. The analyzed knowledge scale data led to the four observations.
1. The subgroup knowledge mean of the SWC-Trainers (n = 9) was significantly different when compared to the subgroup knowledge mean of the SLC-Directors (n = 7) at the .05 level of confidence.

2. The subgroup knowledge mean of the SLC-Trainers (n = 7) was significantly different when compared to the subgroup knowledge mean of the SWC-Directors (n = 5) at the .01 level of confidence.

3. The subgroup knowledge mean of the SLC-Trainers (n = 7) was significantly different when compared to the subgroup knowledge mean of the SLC-Directors (n = 7) at the .01 level of confidence.

4. Concerning this study's two independent population groups: (a) head athletic trainers (SWC-T/SLC-T, n = 16), and (b) head athletics directors (SWC-D/SLC-D, n = 12), the athletic trainers' group knowledge scale mean was found to be significantly different (higher) compared to the athletics directors' group knowledge scale mean at the .05 level of confidence for both the ANOVA, yielding a significant F ratio (where N = 28 with 26 degrees of freedom), and as a result of utilizing the Q Distribution for the Tukey/Kramer (TK) method (where N = 28 with r = 4 and 24 degrees of freedom).

Analytical Data Observations Related to Research Question 1

Regarding observations of analytical data relating to Research Question 1, the data show a significant difference in the knowledge scale mean scores of the head athletics directors' group (n = 12) from the SWC and SLC when compared to the significantly higher knowledge scale mean scores of the head athletic trainers' group (n = 16) from within the SWC and SLC. Critical values are shown to be significant at the .05 and .01 levels of confidence for N = 28, r = 4, and df = 24 when the Q statistic was calculated for the Tukey/Kramer (TK) method in the ANOVA after a significant F ratio was determined.
Further analysis was conducted concerning the breakdown of the SWC-T/SLC-T athletic trainers’ group data and the SWC-D/SLC-D athletics directors’ group data into subgroups. The subgroups comprised the SWC-Trainners, SLC-Trainners, SWC-Directors, and the SLC-Directors for contrasting and comparing the subgroups’ means. The SLC-Trainners group’s knowledge mean score was shown to be significantly higher when compared to both of the athletics directors subgroups’ knowledge mean scores (SWC-D and SLC-D) at the .01 level of confidence. It was also shown that the SWC-Trainners subgroup’s knowledge mean score was significantly higher when compared to the SLC-Directors subgroup’s knowledge mean score at the .05 level of confidence.

Table 12 shows proportionate HIV and AIDS knowledge levels revealed from the knowledge scale instrument for all trainers (n = 16) and directors (n = 12) within the SWC and SLC, where N = 28. The levels of knowledge were determined by reporting the knowledge scale results in three categories according to the percentage of correctly answered items:

1. A **highly knowledgeable** level included the percentage when any groups’ responses to each statement ranged between 80% and 100%.

2. A **moderately knowledgeable** level was obtained when the largest percentages of any groups’ responses to statements ranged between 60% and 79%.

3. A **low knowledge level** resulted when the largest percentages of any groups’ responses to statements were less than 60% for all correctly answered items within the knowledge scale survey section.

In reporting data contained in Table 12, the SWC-T/SLC-T trainers’ group answered correctly within the **highly knowledgeable** level 55.8% of the time, representing the group’s largest percentage of response to each statement for all items marked within the knowledge scale section of the survey. Secondly, this group’s largest percentage of response was 13.5% for all correctly answered items,
Table 12
HIV and AIDS-Related Knowledge Levels for Trainers and Directors

<table>
<thead>
<tr>
<th>Levels of HIV and AIDS-related knowledge</th>
<th>High</th>
<th>Moderate</th>
<th>Low</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>80% to 100%</td>
<td>60% to 79%</td>
<td>&lt;60%</td>
<td></td>
</tr>
<tr>
<td>SWC-T/SLC-T Trainers</td>
<td>55.8%</td>
<td>13.5%</td>
<td>30.7%</td>
<td>= 100%</td>
</tr>
<tr>
<td>SWC-D/SLC-D Directors</td>
<td>32.7%</td>
<td>19.2%</td>
<td>48.1%</td>
<td>= 100%</td>
</tr>
</tbody>
</table>

which ranged within the moderately knowledgeable category. Thirdly, the trainers’ group data show that 30.7% of all correctly answered knowledge scale items fell within the low level of knowledge category and represents the group’s largest percentage of response for each statement. Knowledge level survey data in Table 12 show the SWC-T/SLC-T trainers’ group (n = 16) possessing a moderate-to-high-knowledge level of HIV transmission, prevention, and protection awareness, including other HIV/AIDS-related issues concerning the intercollegiate athletics setting.

In contrast, Table 12 shows that the SWC-D/SLC-D directors’ group answered correctly within the highly knowledgeable level 32.7% of the time, representing the group’s largest percentage of response to each statement for all items marked within the knowledge scale section of the survey. Secondly, this group’s largest percentage of response to each statement was 19.2% for all correctly answered items ranging within the moderately knowledgeable level category. Thirdly, the directors’ group data show that 48.1% of all correctly answered knowledge scale items fell within the low knowledge category and
represents the group's largest percentage of response to each statement.

Knowledge level survey data in Table 12 show the SWC-D/SLC-D directors' group (n = 12) possessing a moderate-to-low-knowledge level of HIV transmission, prevention, and protection awareness issues, including other HIV/AIDS-related issues concerning the intercollegiate athletics setting.

Survey Section 3: Attitude Scale Analysis

Research Question 2

The attitude scale items in the study's survey instrument Section 3 was utilized to collect data pertinent to Research Question 2, which asked the following: Are there any significant differences between the attitudes of head athletics directors and head athletic trainers in the Southwest Conference (Division 1A) and the Southland Conference (Division 1AA) concerning HIV and AIDS issues related to transmission, prevention, and protection that affect the delivery of quality health care services for athletes and staff members within intercollegiate athletics programs? The following is a descriptive analysis of the survey instrument's Section 3 data dealing with 101 attitude scale item responses from (SWC-D/SLC-D, n = 12) head athletics directors and (SWC-T/SLC-T, n = 16) head athletic trainers, where N = 28. Attitude scale items related to HIV and AIDS transmission, prevention, and protection issues within the athletics setting.

Attitude Scale Format and Topics

The attitude scale was developed in a Likert-type format. The format allowed for five different responses ranging from strongly agree, agree, undecided, disagree, and strongly disagree. Percentages of undecided responses ranged from 24.4% for athletics directors to 19.5% for athletic trainers. The attitude scale section contained 101 items and resulted in a total of 2,828 responses. All responses formed the attitude section's raw data. Data were tallied and
categorized, and the various groups' percentages of responses for each item were determined for a qualitatively descriptive analysis.

Various topics were represented throughout the 101 items within the attitude scale section of the survey. Inquiry was made to reveal attitudes concerning the following topics: (a) comfort level regarding HIV transmission discussions and the preferred origin for HIV/AIDS educational intervention; (b) responsibility for the effective delivery of HIV/AIDS awareness education and health care services and compliance with various guidelines, recommendations and/or regulations; (c) the perceived severity of HIV/AIDS as a communicable disease; (d) athletics staff members' sensitivity regarding HIV transmission; (e) personal bias towards the HIV dilemma and public information; and (f) the interaction with HIV-positive individuals.

Additional topical issues covered within the attitude section concerned: (a) the need for terminating a person performing various job functions/duties as a result of his/her HIV-positive and/or AIDS diagnosis; (b) the HIV-positive athlete and the question of competing in contact sports; (c) the issue of mandatory testing for HIV antibodies campuswide; (d) the question of protecting confidentiality and HIV-positive status within the college setting; (e) improving HIV-related health care services to all athletes and staff members; and (f) improving HIV-education awareness levels among all athletes and staff members in intercollegiate athletics. The various issue-related topics were placed into 12 categories that were used in a descriptive format for the analysis of data.
Issue 1: Comfort Level and Preferred Origin for HIV/AIDS Education Intervention

Comfort Level

The subjects were asked if they were uncomfortable discussing HIV, AIDS, and STD transmission-prevention and protection-awareness services and objectives with athletes and athletics department staff members. The majority of athletics directors responded (58%) that they were not uncomfortable discussing such topics, while 33% were undecided, and 8% were uncomfortable. The majority of the athletic trainers responded (75%) that they were not uncomfortable discussing HIV/AIDS-related topics with athletes and staff members. Thirteen percent of the trainers were undecided, and 25% stated that they were uncomfortable with discussing HIV/AIDS-related topics and issues with student athletes and athletics department staff members.

Preferred HIV-Education Intervention

The subjects were asked if they personally preferred that HIV, AIDS, and STD transmission-prevention and protection-awareness education objectives and services be directly discussed with athletes and department staff members outside the athletics setting. Of the athletics directors, 42% responded that they preferred discussions within the athletics setting, whereas 25% were undecided. Thirty-three percent of the directors preferred that discussions with the athletes and staff members be conducted outside the athletics setting when related to HIV and AIDS transmission-prevention and protection-awareness objectives and services. The majority of directors (58%) were either undecided or preferred that discussions be conducted outside the athletics setting.

Of the trainers, 38% responded that they preferred discussions to be within the athletics setting, while 38% were undecided. Twenty-five percent of the trainers preferred discussions to be conducted outside the athletics setting.
concerning related HIV/AIDS transmission-prevention and protection-awareness topics. The majority of trainers (63%) were either undecided or preferred that discussions be conducted outside the athletics setting.

Although 58% of the directors and 75% of the trainers stated that they were not uncomfortable discussing HIV and AIDS transmission-prevention and protection topics with the athletes and staff members, a majority of both groups (directors, 58%; and trainers, 63%) were either undecided and/or preferred that such HIV/AIDS education awareness-related topics take place with athletes and staff members outside the athletics setting. It remains unclear why the groups preferred that discussions take place outside the athletics setting, except that they may feel greater expertise can be found and utilized for greater effectiveness, such as campus health center personnel and/or teams' and/or athletes' personal physicians. This reasoning was stated in other portions of the attitude scale by both groups.

**Issue 2: Responsibility for Delivery of HIV/AIDS Transmission-Prevention and Protection-Awareness Education and Health Care Services**

**Areas of Responsibility: HIV/AIDS Education and Health Care Services**

The subjects were asked to respond to statements concerning three areas having primary responsibility for the effective delivery of HIV and AIDS transmission-prevention and protection-awareness and health care services for student athletes. The three areas of inquiry having some degree of responsibility were (a) the institutions, (b) athletics departments, and (c) administrators within the athletics setting. The responses are revealed in Table 13.

**An institution's responsibility.** The athletics directors and head trainers were asked to respond as to whether they believed that their respective universities should be responsible for dealing with the ethical (professional), moral (societal),
Table 13
Responsibility for the Delivery of HIV/AIDS Transmission-Protection Education

<table>
<thead>
<tr>
<th>Responsibility areas</th>
<th>Level</th>
<th>Ethical (Professional)</th>
<th>Moral (Societal)</th>
<th>Legal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Groups:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Institutional level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directors</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>92%</td>
<td>83%</td>
<td>92%</td>
<td>67%</td>
</tr>
<tr>
<td>Trainers</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>81%</td>
<td>69%</td>
<td>81%</td>
<td>56%</td>
</tr>
<tr>
<td><strong>Athletics department level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directors</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>83%</td>
<td>83%</td>
<td>92%</td>
<td>67%</td>
</tr>
<tr>
<td>Trainers</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>81%</td>
<td>75%</td>
<td>81%</td>
<td>56%</td>
</tr>
<tr>
<td><strong>Athletics administrator level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directors</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>83%</td>
</tr>
<tr>
<td>Trainers</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>88%</td>
<td>94%</td>
<td>88%</td>
<td>94%</td>
</tr>
</tbody>
</table>


and legal issues concerning adequately developing and implementing effective
HIV and AIDS prevention-education and health care services for athletes and staff
personnel within the athletics setting (Table 13). The directors (92%) and the
trainers (81%) agreed that their own university is responsible for effective HIV
and AIDS education awareness programming and health care services.

The directors (83%) and trainers (69%) believed that the university has an
ethical responsibility, whereas 92% of the directors and 81% of the trainers felt
that the university, as an institution, has a moral responsibility to help control HIV transmissions within the campus setting. But regarding a university’s legal responsibility for the same, only 67% of the directors and 56% of the trainers, felt that their institutions are legally bound to provide educational intervention and related health care services (Table 13).

**An athletics department’s responsibility.** The same inquiry was asked regarding departmental, ethical, moral, and legal responsibilities for providing HIV/AIDS education (Table 8). Eighty-three percent of the directors and 81% of the trainers believed that their respective athletics departments are departmentally responsible for providing effective HIV and AIDS prevention-education and health care services for athletes and staff members.

Within their respective departments, directors (83%) and trainers (75%) agreed that their athletics departments are ethically responsible, whereas 92% of the directors and 81% of the trainers felt that their athletics departments are morally responsible as well. Compared to the institution’s legal responsibility, the directors (67%) and the trainers (56%) felt that their respective athletics departments are legally responsible to intervene with effective HIV and AIDS protection-awareness education and health care services for athletes and staff members (Table 13).

**Athletics administrators’ responsibility.** The subjects were asked if they felt that they were professionally responsible as administrators in charge of providing adequate athlete health care education and services. Interestingly enough, the athletics directors (100%) and trainers (88%) stated that they were professionally responsible for enhancing the HIV/AIDS education status of all athletes within the athletics health care environment (Table 13).

One hundred percent of the directors and 94% of the trainers felt that their representative group has an ethical responsibility, whereas 100% of the directors
and 88% of the trainers believed that their respective groups are morally responsible for providing enhanced HIV and AIDS protection awareness for all athletes. When asked about the legal responsibility of administrators within the sports management sector for providing effective HIV/AIDS education, 84% of the directors and 94% of the trainers agreed that it was their responsibility as primary health care service providers to all athletes and staff members within the athletics setting (Table 13).

**Compliance With Regulations, Recommendations, and Guidelines**

**Compliance campuswide.** The directors and trainers were asked to respond to a statement concerning whether their own institution was fully complying with various HIV transmission-prevention and protection guidelines, recommendations, and regulations established by the ACHA, AGB, APA, USDHHS, and/or OSHA. Fifty percent of the directors and 50% of the trainers responded that his/her own university is in full compliance regarding established HIV transmission-prevention guidelines, whereas 33% of the directors and 38% of the trainers were undecided about the statement. Seventeen percent of the directors and 13% of the trainers did not believe that his/her university is in full compliance with established HIV prevention and protection guidelines.

**Compliance within the athletics department.** Similarly, each director and trainer was asked to respond to a statement concerning whether his/her own department of athletics was fully complying with HIV transmission-prevention and protection guidelines, recommendations, and regulations established by the ACHA, AGB, AAP, USDHHS, and/or OSHA. Again, 50% of the directors and 50% of the trainers responded that their respective athletics departments fully comply with established HIV transmission, prevention, and protection guidelines, while 33% of the directors and 38% of the trainers were undecided about the statement. Seventeen percent of the directors and 13% of the trainers felt that
his/her own athletics department is not fully complying with established HIV-prevention guidelines established for the athletics setting.

Need for government regulations within the college setting. The subjects were asked to respond to the statement concerning whether federal and state governments have a duty to protect workers and students from HIV transmissions within the college setting. Seventy-five percent of the directors and 44% of the trainers felt regulations are needed to protect campus student bodies, whereas 17% of the directors and 44% of the trainers were undecided about the need for government regulations. Eight percent of the directors and 13% of the trainers felt no need for government regulations to protect respective student bodies from HIV transmissions within the campus setting.

Need for government regulations within athletics. The subjects were asked to respond to the statement concerning whether federal and state governments have a duty to protect workers and student athletes from HIV transmissions within the athletics setting. Fifty percent of the directors and 31% of the trainers felt government intervention is needed to fully protect workers and student athletes within the athletics setting, whereas 25% of the directors and 38% of the trainers were undecided about the issue. Twenty-five percent of the directors and 31% of the trainers did not feel a need for government regulations to protect staff workers and athletes within the athletics setting.

Issue 3: Perceived Severity of HIV/AIDS as a Communicable Disease Within Athletics Setting and Across Campus Setting

Regarding the perceived severity of HIV/AIDS as a communicable disease, the two groups in the study were asked to respond to various statements reflecting their groups’ respective attitudes. The participants were asked to respond to whether HIV transmission is a preventable dilemma in the athletics setting and
within the overall campus setting. The groups' members were polled as to the perceived severity of the HIV/AIDS dilemma as a health problem within their respective athletic settings, universities, communities and as to whether the HIV/AIDS dilemma is a national health problem within the intercollegiate athletics setting and/or within the higher education setting.

**Perceived Ability for Preventing HIV Transmission Campuswide**

**Preventable within the athletics setting.** The first inquiry was concerning whether subjects felt that the HIV-infection-transmission issue is a preventable dilemma within the athletic health care setting. Of the athletics directors, 42% agreed that it was a preventable dilemma, whereas 50% were undecided, and 8% disagreed that the HIV-infection issue was preventable within the athletic setting. Comparatively, a majority of the athletic trainers responded (69%) in agreement that it was a preventable dilemma, while 13% were undecided, and 19% disagreed that the HIV-infection-transmission issue is preventable within the athletics setting.

**Preventable within the campus setting.** The second inquiry concerned whether each subject personally felt that the HIV-infection-transmission issue is a preventable dilemma within the college setting. The athletics directors responded (50%) in agreement that it is a preventable dilemma, whereas 42% were undecided, and 8% disagreed that the HIV-infection-transmission issue is preventable in the college setting. A majority of the athletic trainers responded (69%) in agreement that it is a preventable dilemma, whereas 13% were undecided, and 19% disagreed that the HIV-infection-transmission issue is preventable in the college setting. The responses to both inquiries remained similar between the athletics directors' group and the athletic trainers' group.
Perceived Severity of HIV/AIDS-Related Health Problems

Within the athletics department. Athletics directors were asked if HIV/AIDS-related illnesses were a health problem within their respective athletics departments. Forty-two percent of the directors did not feel HIV/AIDS-related illnesses were a health problem in their departments, whereas 25% were undecided, and 33% stated that it was a departmental health problem. The athletics directors responded, similar to their responses on their group’s demographic profile, that they knew no HIV-infected individuals within their own athletics workplace.

The athletic trainers responded (56%) that HIV/AIDS-related illnesses were not a departmental health problem, with 13% marking undecided and 31% stating that HIV/AIDS-related illnesses were a health problem within their respective athletics settings. The trainers’ percentage results for this inquiry were higher than the 13% related in their group’s demographic profile when asked if they knew HIV-infected individuals in their athletics workplace environment. Of course, they may have HIV-infected athletics within their respective workplaces and not personally know who the HIV-infected individuals are due to confidentiality restrictions implemented by the teams’ and/or athletes’ physician(s).

Within the campus setting. Athletics directors were asked if HIV/AIDS-related illnesses were a health problem within their respective campus settings. Thirty-three percent of the directors did not feel HIV/AIDS-related illnesses were a health problem in their universities, whereas 8% were undecided, and 58% stated that HIV/AIDS-related illnesses were a campus health problem.

In a comparison of tallied results from the athletic trainers group’s inquiry, they responded (31%) that HIV/AIDS-related illnesses were not a campus health problem, with 19% marking undecided, and 50% stating that HIV/AIDS-related illnesses were a health problem within their respective campus settings.
Within the community setting. Athletics directors were asked if HIV/AIDS-related illnesses were a health problem within their respective communities. Eight percent of the directors did not feel HIV/AIDS-related illnesses were a health problem in their communities, whereas 8% were undecided, and 83% stated that HIV/AIDS-related illnesses were a communitywide health problem.

Similarly, 13% of the athletic trainers group’s responded that HIV/AIDS-related illnesses were not a communitywide health problem, with 13% marking undecided, and 74% stating HIV/AIDS-related illnesses were a health problem within their respective community settings.

Within the college athletics setting. Athletics directors were asked if HIV/AIDS-related illnesses were a health problem within the intercollegiate athletics setting. Twenty-five percent of the directors did not feel HIV/AIDS-related illnesses were a health problem in the intercollegiate athletics, whereas 17% were undecided, and 58% stated that HIV/AIDS-related illnesses were an intercollegiate athletics health problem.

Conversely, in a comparison of tallied results from the athletic trainers group’s inquiry, they responded (56%) that HIV/AIDS-related illnesses were not an intercollegiate athletics health problem, with 19% marking undecided, and 25% stating that HIV/AIDS-related illnesses were a health problem within the intercollegiate athletics settings.

HIV transmission as a national health problem. Athletics directors were asked if HIV/AIDS-related illnesses were a national health problem. Seventeen percent of the directors did not feel HIV/AIDS related illnesses were a national health problem, whereas 17% were undecided, and 67% stated that HIV/AIDS-related illnesses were health problem throughout the United States.
Similarly, 6% of the athletic trainers responded that HIV/AIDS-related illnesses were not a national health problem, with 13% marking undecided and 81% stating that HIV/AIDS-related illnesses were a national health problem throughout the United States.

HIV Transmissions as a Serious Health Problem in the Future?

Lastly, concerning perceived severity of HIV transmissions, the groups were asked to respond to survey statements relating to whether HIV and AIDS transmissions/illnesses will become a serious health problem in the future: (a) within their respective athletics department workplaces, (b) campuswide, and (c) communitywide.

Within the athletics department. Athletics directors were asked if HIV transmissions will become a serious health problem in their respective athletics departments in the future. Twenty-five percent of the directors did feel HIV transmissions will be a serious health problem in their own athletics departments, whereas 42% were undecided, and 17% stated that HIV transmissions will not become a serious health problem within their athletics departments in the future.

Similarly, 25% of the athletic trainers responded that HIV transmissions will become a serious health problem within their respective athletics settings, while 31% were undecided, and 44% stated that HIV transmissions will not become a serious health problem in the athletics setting on their respective campuses.

A campuswide problem. When asked if HIV transmissions will become a serious health problem within their respective universities, the athletics directors responded (17%) in agreement. Sixty-seven percent were undecided about the inquiry, and 17% felt that HIV transmissions will not become a serious university-wide health problem.
Similarly, the athletic trainers responded (38%) that they feel HIV transmissions will become a serious health problem university-wide in the future. Of the trainers, 25% were undecided concerning this inquiry, and 38% felt that HIV transmissions will not become a serious health problem university-wide.

A communitywide problem. Finally, the two groups were asked to respond to the inquiry concerning whether HIV transmissions will become a communitywide health problem in the future. Of the athletics directors, 33% responded in agreement to the statement, while 42% were undecided, and 25% did not feel that HIV transmissions will become a communitywide health problem in the future.

Conversely, 63% of the athletic trainers responded that HIV transmissions would become a communitywide health problem in the future. Undecided responses from the trainers totaled 19%, and 19% of the trainers did not believe HIV transmissions would become a communitywide health problem in the future.

**Issue 4: Athletics Staff Members’ Sensitivity Regarding HIV Transmission**

**Workplace and Non-workplace Risks of HIV Infection**

**Non-workplace risk.** When asked to respond to the statement concerning whether the directors and trainers feel personally threatened about the possible risk of exposure to HIV infections within their non-workplace environments, 25% of the directors and 13% of the trainers marked that they felt personally threatened concerning the possible risk. Of the athletics directors, 17% were undecided about the statement, whereas no (0%) trainers were undecided. Fifty-eight percent of the directors and 88% of the trainers do not feel personally threatened about the possible risk of acquiring HIV infections in their non-workplace settings.

**Workplace risk of HIV infection.** The two groups’ responses were basically the same when asked if they felt personally threatened about the possible risk of acquiring HIV infections within their athletics workplace; 33% of the
directors and 31% of the trainers did feel threatened about the risk of possible HIV infections. Of the directors, 17% were undecided about the statement, whereas no trainers (0%) were undecided. Fifty percent of the directors and 69% of the trainers did not feel personally threatened about the possible risk of acquiring HIV infections within the athletics setting.

**Athlete/staff infection risks.** The two groups' responses were basically the same when asked if they felt concern about athletes and athletics staff members becoming HIV and/or HBV-infected within the athletics setting. Forty-two percent of the directors and 56% of the trainers were concerned about the possible risks of HIV and/or HBV infection transmissions within the athletics setting. Twenty-five percent of the directors and 31% of the trainers were undecided about the statement, whereas 33% of the directors and 13% of the trainers stated that they were not concerned about possible risks of HIV and/or HBV infection transmissions within the athletics workplace.

**Risk of Infection: HIV vs. HBV**

**Within the athletics setting.** The athletics directors and athletic trainers were asked to respond to the statement as to whether they felt the health issue regarding HBV transmission is more critical than the current HIV dilemma within the athletics setting. Forty-two percent of the directors and 69% of the trainers agreed that HBV transmission is a more critical issue than the HIV-transmission issue. The directors' group (42%) was more undecided about the statement than the trainer’s group (19%). Both groups marginally disagreed with the statement that HBV transmission is more critical than HIV transmission, with 17% of the directors and 13% of the trainers marking their surveys accordingly.

**Personally threatened by HBV infection risk.** There were contrasting attitudes between the directors and trainers when asked if they personally felt threatened about the risk of acquiring HBV infections within the athletics
workplace. Seventy-five percent of the directors and only 19% of the trainers do feel threatened by the risk of acquiring HBV infections within the athletics workplace, whereas 8% of the directors and 19% of the trainers were undecided about the statement. Seventeen percent of the directors and 63% of the trainers do feel threatened by the risk of HBV infections within the athletics setting.

**Issue 5: Personal Bias Toward the HIV Dilemma and Public Information**

The HIV Dilemma as Media Exaggeration/Punishment for Risky Behavior

**HIV media hype.** The groups' members were asked to respond whether they felt that the HIV/AIDS dilemma is blown out of proportion in the news media and professional literature with regards to a public health problem. Consistently, the athletics directors (75%) and athletic trainers (75%) responded that they did not feel the HIV/AIDS issue was blown out of proportion in the media and/or through published literature. Undecided responses for the inquiry were 8% and 13%, respectively, for directors and trainers, whereas 17% of the directors and 13% of the trainers did feel the HIV/AIDS issue is blown out of proportion by the news media and/or through professional literature.

**HIV infection as punishment.** The respondents were asked to relate their personal feelings concerning whether HIV and AIDS are punishments for personal health choice activities. Seventy-five percent of the directors and 81% of the trainers did not feel that becoming HIV infected was a punishment for wrong personal health choices and risky activities. No respondents agreed (0%) that becoming HIV-infected is a punishment for risky behaviors. When asked a second time during the survey section, 92% of the directors and 81% of the trainers, again, did not feel that becoming HIV infected was what the afflicted individuals deserved for their high-risk behaviors.
HIV transmission and homosexual/IV-drug use/minorities behaviors. The subjects were asked to respond to the statement that AIDS is largely a homosexual/IV-drug use/minority health issue and therefore has no place for debate in the intercollegiate athletics setting. Ninety-two percent of the directors and 81% of the trainers did not agree that AIDS is largely a homosexual/IV-drug use/minority health issue. Only 6% of the trainers did agree with the statement, whereas 8% of the directors and 13% of the trainers were undecided about the statement.

Issue 6: Interaction

With HIV-Infected Individuals

Right to Refuse to Work with a HIV-Positive Coworker

There were proportionally contrasting attitudes between directors and trainers concerning the statement dealing with the individual’s right to refuse to work with an HIV-positive coworker within the athletics setting. The directors’ responses were somewhat equally spread across the spectrum of attitudes, with 42% in agreement with the right to refuse to work with HIV-infected individuals, 25% undecided, and 33% responding that the individual does not have the right to refuse to work with an HIV-positive coworker.

A majority of the trainers disagreed (56%) with the statement’s intent concerning refusal to work side-by-side with HIV-positive coworkers, while 25% (same as directors) were undecided about the issue, and 19% of the trainers felt it is their right to refuse to work with HIV-infected individuals within the athletics setting. Of the directors, 67% agreed or were undecided about whether they have the right to refuse to work with HIV-infected individuals, whereas 81% of the trainers disagreed or were undecided about the issue raised by the statement.
The Right to Delay Treatment of HIV-Positive Athletes

The study’s participants were asked to respond to the statement concerning whether they had a right to delay treatment of an HIV-positive athlete. The statement is an example of one of the few survey statements that resulted in somewhat contrasting attitudes between directors and trainers. Seventy-five percent of the directors and only 44% of the trainers disagreed with exercising the right to delay treatment of an HIV-positive athlete. A larger proportion of the trainers’ responses were undecided (31%) when compared to the directors (8%). Only 17% of the directors agreed with the statement concerning safeguarding an individual’s right to delay treatment compared to 25% of the trainers. Twenty-five percent of the directors either agreed with or were undecided about the statement, while 56% of the trainers responded similarly.

Attending to a Bleeding Athlete

The participants were asked if they would be willing to attend to a bleeding athlete without using any recommended prevention and protection techniques. Seventeen percent of the directors and 25% of the trainers stated that they would treat bleeding athlete without practicing safe HIV transmission techniques, whereas 8% of the directors and 6% of the trainers were undecided about the inquiry. A majority of both groups—75% of the directors and 69% of the trainers—would only treat bleeding athletes while utilizing recommended HIV transmission-prevention techniques and safeguards within the athletics setting.

HIV+ Athletes/Staff Members Within the Athletics Setting

Athletes allowed to remain. The participants were asked if it were up to each of them, as an administrator/practitioner, would he/she allow an athlete with HIV to remain in the athletics setting. Forty-two percent of the directors and 62% of the trainers agreed that they would allow the HIV-positive athlete to remain within the athletics setting. An equally proportionate percentage of the directors
(42%) were undecided about the issue, whereas 31% of the trainers were also undecided about the inquiry. Of the respondents that would not allow an HIV-positive athlete to remain within the athletics setting, 17% of the directors and 6% of the trainers marked their surveys accordingly.

**Staff members allowed to remain.** The study’s subjects were asked if it were up to each of them, as an administrator/practitioner, would he/she allow a staff member with HIV to remain within the athletics setting. Fifty-eight percent of the directors and 81% of the trainers agreed that they would allow the HIV-positive staff member to remain within the athletics setting. Twenty-five percent of the directors and 13% of the trainers were undecided about the statement. Of the respondents that would not allow an HIV-positive staff member to remain within the athletics setting, 17% of the directors and 6% of the trainers marked their surveys accordingly.

**Personally relating to an HIV+ athlete.** Concerning the issue of personal interaction with an HIV-positive athlete, 17% of the directors and 56% of the trainers confirmed that their personal interaction would occur equally between the HIV-infected athlete(s) and the non-infected athletes. Regarding undecided responses, 58% of the directors and 19% of the trainers were unsure if they would interact with HIV-infected athletes equally or differently from interaction with non-infected athletes within the athletics setting. Equally, 25% of the directors and trainers stated that they would personally interact differently with HIV-infected athletes compared to how they would interact with non-infected athletes.

**Personally relating to an HIV+ staff member.** Concerning the issue of personal interaction with an HIV-positive staff member, 42% of the directors and 50% of the trainers confirmed equal personal interaction would occur between the HIV-infected staff members and the non-infected personnel. Regarding undecided responses, 58% of the directors and 38% of the trainers were unsure if they would
interact with HIV-infected staff members equally or differently when compared to personal interaction with non-infected personnel. No directors (00%) and 13% of the trainers stated that they would personally interact differently with HIV-infected staff members compared to how they would interact with non-infected athletics department personnel.

**Issue 7: Job Function and Duties**

**Termination Regarding HIV+ and/or AIDS Diagnosis**

**Anyone vs. Staff Member Diagnosed with HIV/AIDS**

**Anyone diagnosed HIV+**. Each study subject was asked to respond to an inquiry that stated, specifically, anyone providing student athlete health care services and techniques within the athletics setting should be allowed to continue their job functions and duties after confirmation of HIV-infection. Twenty-five percent of the directors and 50% of the trainers agreed that HIV-positive individuals should be allowed to perform health care-related services and techniques in treating athletes, whereas 25% of the directors’ and trainers’ groups were equally undecided about the issue. Fifty percent of the directors and 25% of the trainers feel that anyone diagnosed HIV-positive should not be allowed to continue performing health care related job functions and duties once they become HIV infected.

**Athletics personnel diagnosed HIV+**. The study’s subjects were asked to respond to the statement concerning whether athletics staff personnel should be allowed to continue with their current job functions, duties, and health care responsibilities within the athletics setting after becoming HIV-positive. Sixty-seven percent of the directors and 88% of the trainers agreed that HIV-positive individuals should be allowed to continue with related health care duties within the athletics setting. Thirty-three percent of the directors and 13% of the trainers were undecided about the issue.
Anyone diagnosed with AIDS. Each study subject was asked to respond to an inquiry that stated, anyone providing student athlete health care services and techniques within the athletics setting should be allowed to continue their job functions and duties after acquiring AIDS. Only 17% of the directors and 25% of the trainers agreed that separation from job functions and duties should occur for all AIDS-afflicted individuals, whereas 33% of the directors and 38% of the trainers were undecided about the issue. Fifty-eight percent of the directors and 38% of the trainers agreed that AIDS-diagnosed individuals should not be allowed to continue performing student athlete health care services and techniques within the athletics setting.

Athletics staff personnel diagnosed with AIDS. Each director and trainer was asked whether athletics staff personnel should be allowed to continue with their current job functions, duties, and related health care responsibilities after acquiring AIDS. A total of 42% of the directors and 81% of the trainers felt staff members with AIDS should be allowed to continue their job functions, duties, and health care responsibilities within the athletics setting. A majority of the directors (50%) and 19% of the trainers were undecided about this issue, whereas 8% of the directors and no (0%) trainers felt that AIDS-diagnosed staff personnel should not perform related job functions and health care services for athletes within the athletics setting.

Athletics administrator/practitioner HIV+ diagnosis. The participants were asked whether, if they personally became HIV-positive, then would they leave their present duties as head athletics directors or head athletic trainers. Seventeen percent of the directors and 31% of the trainers stated that they would leave their current employment if they became HIV-infected within the athletics setting. A majority of the directors (83%) were undecided, and 25% of the trainers were unsure about the issue. No directors (0%) stated that they would remain
employed as an HIV-infected head athletics administrator. In contrast, 44% of the trainers stated that they would remain in their current job capacity as head health-care practitioner providing HIV transmission-protection services to departmental athletes and support staff personnel.

Athletics administrator/practitioner diagnosed with AIDS. The participants were asked whether they would remain in their current job capacities if they were personally diagnosed with AIDS. Forty-two percent of the directors and 69% of the trainers stated that they would leave their respective head positions of employment if diagnosed with AIDS. Fifty percent of the directors and 25% of the trainers were undecided about the issue, whereas 8% of the directors and 6% of the trainers responded that they would stay in their current jobs as either head directors or trainers if diagnosed with AIDS.

Issue 8: HIV+ Athletes and the Question of Competing Contact vs. Noncontact Sports

Contact sports. The participants were asked if they agreed with the statement that an HIV-positive athlete should be allowed to participate in contact sports, allowing the chance for viral transmission and infection to spread to other athletes and support staff members. Sixty-seven percent of the directors and 44% of the trainers felt that HIV-positive athletes should not be allowed in contact sports, whereas 25% of the directors and 31% of the trainers were undecided about the issue. Eight percent of the directors and 25% of the trainers did feel that HIV-positive athletes should be allowed to compete in contact sports within the athletics setting.

Noncontact sports. In a related inquiry, each director and trainer was asked if he/she agreed with the statement saying that an HIV-positive athlete should be encouraged to participate in a noncontact sport of his/her choosing. Forty-two
percent of the directors and 31% of the trainers felt that HIV-positive athletes should be encouraged to choose among noncontact sports, whereas 42% of the directors and 50% of the trainers were undecided about the issue. The percentage of disagreeing respondents to the inquiry were 17% of the directors and 19% of the trainers. The largest percentage of responses were recorded in the undecided category regarding this issue.

**Attending regular classes.** Each director and trainer was asked if he/she agreed with the statement that any HIV-positive athlete should be allowed to attend regular classroom activities within the campus setting. Ninety-one percent of the directors and 100% of the trainers agreed that HIV-positive athletes should be allowed to attend regular classroom functions. Eight percent of the directors disagreed.

**Issue 9: Mandatory Testing for HIV Antibodies**

*Student Body, Student Athletes, Staff, and Campus Personnel*

**Entire student body.** The head directors and trainers were asked to respond to a statement concerning whether all students on campus should be tested for HIV antibodies. A small portion of the directors (8%) and 25% of the trainers felt that all students should be HIV tested, whereas 42% of the directors and 25% of the trainers were undecided about the issue. Fifty percent of the directors and 50% of the trainers did not feel that all students should be tested for HIV within the campus setting.

**All student athletes.** The directors and trainers were asked to respond to a statement concerning whether all student athletes should be tested for HIV antibodies. The same number of responses was marked by both groups regarding testing all student athletes as for the entire student body.
All athletics staff members. Both groups were asked to respond to a statement concerning whether all athletics staff members should be tested for HIV antibodies. Similar figures were again recorded for all options, with 8% of the directors and 25% of the trainers agreeing that all athletics staff members should receive testing for HIV antibodies. Forty-two percent of the directors and 19% of the trainers were undecided about the issue of HIV testing for all staff members. Fifty percent of the directors and 56% of the trainers were against HIV testing for all athletics staff members.

All college personnel. Participants were asked to respond to a statement concerning whether all college personnel and support staffs' members should undergo testing for HIV antibodies within the campus setting. Once again, identical directors' and trainers' responses were recorded for college personnel and support staffs as were recorded for all athletics staff members concerning the issue of mandatory HIV testing within the college setting.

HIV testing vs. HBV testing. When asked to respond to the same set of statements concerning HBV instead of HIV, the groups recorded nearly identical results. Both groups remained highly consistent regarding their attitudes about the issue of mandatory HIV testing without the campus setting. More directors were undecided (from 33% to 58%) about the HIV and HBV testing issues than were trainers (from 13% to 38%).

Issue 10: Protecting Confidentiality and HIV+ Status Within the College Setting

The Right-to-Know Issue About HIV+ Individuals

As individuals. The participants in the study were asked to respond to the statement concerning whether, as individuals within their communities, they had the civic right to be told if another individual was diagnosed HIV-positive, who had administrative and/or direct health-care responsibilities. Ninety-two percent
of the directors and 75% of the trainers felt they have the civic right to be informed, whereas 8% of the directors and 13% of the trainers were undecided. Only 13% of the trainers did not feel that any individual should be informed about a person’s HIV-positive status.

As athletics administrators/practitioners. The study’s two groups were asked to respond to the statement concerning whether, as the athletics department’s top administrators, each director/trainer has the professional right to be told immediately if an athlete or staff member is diagnosed HIV-positive. Ninety-two percent of the directors and 69% of the trainers felt they have the professional right to be immediately informed, whereas 8% of the directors and 19% of the trainers were undecided. Only 13% of the trainers did not feel that the top administrator or direct health care practitioner has the professional right to be immediately informed about an HIV-positive individual within the athletics setting.

As athletes and staff members. The study’s subjects were asked to respond to whether all athletes and staff members have the right to be informed if an athlete or staff member becomes HIV-positive within the athletics setting. Seventy-five percent of the directors, but only 25% of the trainers, agreed that athletes and staff members should be informed if an athlete or staff member becomes HIV-positive within the athletics setting, whereas 25% of the directors and 25% of the trainers were undecided. None (0%) of the directors and 44% of the trainers responded that they do not believe athletes and staff members have the right to be informed when another athlete or staff member becomes HIV-positive.

As opposing team/staff members. Each director and trainer was asked to respond to a statement concerning whether opposing team members and staff personnel have the right to be informed when they compete against another team’s athlete or work with a staff member who is HIV-positive. Sixty-seven percent of
the directors, but a lower 31% of the trainers believe that an opposing team’s athletes and staff members have the right to be informed when a competitor or an opposing team’s staff member is HIV-positive, whereas 33% of the directors and 25% of the trainers were undecided. No directors (00%) and 44% of the trainers believe that once an athlete or staff member becomes HIV-positive, the opposing team’s athletes and staff members have a right to be informed of any infected individual(s) within the athletics setting.

As parent(s) of HIV+/AIDS athlete. Each director and trainer was asked to respond to the statement concerning whether parents should be informed if their offspring becomes HIV-positive or develops AIDS. One hundred percent of the directors and 63% of the trainers responded that the HIV-infected athlete’s parents should be informed of their offspring’s HIV/AIDS status, whereas 13% of the trainers were undecided about the issue and 25% of the trainers did not believe a parent should be told about the HIV/AIDS status of their offspring in the athletics setting.

Responsibility to Inform Others of HIV+ Status

Administrators’ responsibility to inform parents. In a related statement, each director and trainer was asked to respond to the statement concerning whether it would be his/her responsibility, as an administrator or direct health care practitioner, to alert parent(s) of the fact that a particular student athlete has become HIV-positive or has developed AIDS. There was disagreement between the study’s groups concerning this issue, with 50% of the directors and only 25% of the trainers responding that, as head athletics department administrators or direct health care practitioners, each has the responsibility to inform parent(s) that a particular student athlete has become HIV-positive or has developed AIDS. Twenty-five percent of the directors and 13% of the trainers were undecided, whereas 25% of the directors and 63% of the trainers did not feel it is the
responsibility of head athletics administrators to inform parents of athletes that another student athlete has become HIV-positive or has been diagnosed with AIDS.

Responsibility to inform athletes/staff members. The directors and trainers were asked to respond whether, as head athletics administrators in charge of direct health care for all athletes and personnel within the athletics setting, it was their responsibility to alert athletics staff personnel and athletes to the fact that an individual within the athletics setting has become HIV-positive or has developed AIDS. Twenty-five percent of the directors and 13% of the trainers felt it is their responsibility to inform, whereas 42% of the directors and 25% of the trainers were undecided about the issue. Thirty-three percent of the directors and 63% of the trainers did not feel it is their responsibility to inform others within the athletics department concerning other’s HIV/AIDS status within the athletics setting.

As faculty of HIV+/AIDS student. Each director and trainer was asked to respond to a statement concerning whether a faculty member should be informed if an HIV-positive student is attending his/her class on campus. Fifty percent of the directors and 13% of the trainers felt that faculty members should be informed if an HIV-positive student is attending his/her class on campus, whereas 8% of the directors and 6% of the trainers were undecided about the issue. Only 8% of the directors and 81% of the trainers felt that a faculty member should not be informed if they have an HIV-positive student attending his/her class on campus.

As athletics department administrators. Each director and trainer was asked to respond to a statement concerning whether athletics department administrators should be told if an HIV-positive student is attending university functions, athletics events, or classes within the campus setting. Fifty-eight percent of the directors and 31% of the trainers felt that they should be informed about the
campus activities of any HIV-positive student within the campus setting, whereas 8% of the directors and 13% of the trainers were undecided about the issue. A third of the directors (33%) and 56% of the trainers did not feel that athletics department administrators should be told if an HIV-positive student is attending university functions, athletics events, or classes on campus.

**HIV+/HBV+ Status: Right to Be Informed and Inform Others**

**Right to be informed.** The directors and trainers were asked to respond to a statement concerning whether they feel that they have a right to be told if they are working with an HIV or HBV-infected person within the athletics setting. Seventy-five percent of the directors and 56% of the trainers felt that they have the right to be informed, while no directors and 25% of the trainers were undecided about the issue. Twenty-five percent of the directors and 19% of the trainers did not feel that they have the right to be told if they are working with an HIV or HBV-infected individual within the athletics setting.

**Right to know who is transmitting HIV.** The directors and trainers were asked to respond to a statement concerning whether they feel they have the right to be told who is transmitting HIV, once exposed and diagnosed as being HIV-positive. Sixty-seven percent of the directors and 69% of the trainers felt that they have the right to be informed of who transmitted HIV to them after being exposed and contracting the virus, while 25% of both groups were undecided by the issue. Eight percent of the directors and 6% of the trainers did not feel they have the right to be told who specifically exposed and infected them with HIV.

**Issue 11: Improving Health Care Services to Athletes/Staff Members**

**Research, Compliance, and Inservice Education**

The head directors and trainers were asked to respond to various statements dealing with (a) research efforts, (b) compliance effectiveness, and (c) the need for
inservice education seminars for all individuals associated with the athletics
department’s program activities.

The need to increased research in the athletics setting. The study’s subjects
were asked to respond to a statement concerning whether more research is needed
within the intercollegiate setting concerning HIV and AIDS issues related to
prevention and protection health care services and techniques for athletes. Ninety-
two percent of the directors and 81% of the trainers responded that more research
is needed within the college athletics sector, whereas 6% of the trainers were
undecided. Only 8% of the directors and 6% of the trainers believe that ample
research is being conducted within the intercollegiate athletics setting concerning
HIV transmission-prevention and protection health care services and techniques
for athletes.

Compliance with HIV transmission prevention guidelines. Each director
and trainer was asked to respond to a statement concerning whether enough is
being accomplished within the athletics setting regarding effective control of HIV
transmissions through enhanced health care services for athletes. Only 25% of the
directors and 50% of the trainers believe that effective compliance of HIV
guidelines is being accomplished for the well-being of all athletes, whereas 58%
of the directors and 44% of the trainers are undecided about the issue.

The need for HIV transmission inservice education. Each director and
trainer was asked to respond to various statements concerning whether (a) athletics
directors and support staff members, (b) athletic trainers and support staff
members, (c) coaching staff members, and (d) all athletes within the intercollegiate
athletics setting should have special inservice training education concerning HIV
transmission-prevention and protection issues. Both groups similarly agreed that
inservice education was needed for the following groups: (a) athletics
directors/support staffs (83% of the directors and 100% of the trainers agreed);
(b) athletic trainers/support staffs (92% of the directors and 100% of the trainers agreed); (c) coaching staffs' members (92% of the directors and 100% of the trainers agreed); and (d) all athletes within the intercollegiate athletics setting (92% of the directors and 94% of the trainers agreed). All other responses given by the study's subjects were undecided concerning the issue.

**Issue 12: Improving HIV Education and Awareness Levels of Athletes/Staff Members**

**Emphasizing the HIV Dilemma Among Young Adults**

**Within the higher education setting.** The study's subjects were asked to respond to the statement concerning whether the dilemma surrounding HIV transmissions and the acquiring of AIDS should be a major concern within the higher education community. Eighty-three percent of the directors and 63% of the trainers believe the HIV/AIDS dilemma should be a major concern within the higher education community, while 17% of the directors and 25% of the trainers were undecided about the statement. Only 13% of the trainers responded that they feel the HIV/AIDS dilemma should not be a major concern within the higher education community.

**Within the college athletics setting.** Similarly, the directors and trainers were asked to respond to a statement concerning whether the HIV/AIDS dilemma should be a major concern within the intercollegiate athletics community. Eighty-three percent of the directors and 56% of the trainers felt that the HIV/AIDS dilemma should be a major concern within the intercollegiate athletics setting, whereas 17% of the directors and 31% of the trainers were undecided about the statement. Only 13% of the trainers responded that they feel the HIV/AIDS dilemma should not be a major concern within the intercollegiate athletics community.
Effectively Teaching About HIV Transmission

Teaching about HIV transmissions campuswide. Directors and trainers were asked to respond to a statement concerning whether all athletes should be taught about HIV transmission-prevention and protection while within the college setting. One hundred percent of the directors and 100% of the trainers believe that athletes should be educated about HIV transmission-prevention and protection within the college setting.

Teaching about HIV transmissions within the athletics setting. Specifically, each director and trainer was asked to respond to a statement concerning whether the teaching of HIV transmission-prevention and protection should take place within the athletics setting. One hundred percent of the directors and 88% of the trainers believe that the athletics setting is where HIV transmission-prevention education should be taught to all athletes. Only 13% of the trainers were undecided about the statement.

HIV Issue Comparisons

Agreement Between Directors and Trainers

Twelve broad areas of topical issues were profiled in the attitude section of the survey containing 101 statements. Agreement was recorded between the two groups for each statement in percentages of response. Head athletics directors and head trainers agreed on 74 of the 101 statements (74%), representing 9 of the 12 topical issues (75%), in which both groups' percentages of responses exceeded a 51% majority. An additional 11 statements were agreed upon by the two groups' respondents, in which the percentages of agreement per statement represented the largest proportion of the individual group’s responses, but fell below a 51% majority.
Disagreement Between Directors and Trainers

Regarding the 12 issues profiled within the attitude section of the survey containing 101 statements, head athletics directors and head trainers proportionately disagreed in three specific areas: (a) confidentiality (7 items, representing 7% of all statements); (b) interaction with HIV positive individuals (6 items, 6%); and (c) the perceived severity of the HIV/AIDS dilemma (3 items, representing 3% of all statements). Overall, a majority of the subjects within the study's two population groups disagreed on only 16% of the 101 statements (16 items) concerning 3 of the 12 topical issues (25%) surrounding the HIV/AIDS dilemma within the general public health sector, the college setting, or, specifically, within the athletics setting.

Undecided Responses Between Directors and Trainers

Regarding undecided responses to various statements in the attitude section, the head athletics directors' group responded to 25 statements in which the percentage for undecided ranged from 33% to 67%. The specific HIV-issue statement areas that received at least 33% of undecided responses were in the areas concerning (a) the degree of perceived severity of the HIV/AIDS dilemma; (b) effective control of HIV transmissions; (c) allowing HIV-positive athletes to compete in contact sports; (d) the degree of confidentiality allowed; and (e) the question of mandatory testing for HIV antibodies within the college setting.

The head athletic trainers' group responded to 17 statements for which the percentages of undecided responses ranged from 31% to 50% per statement. Specific HIV-issue statement areas that received at least 31% of undecided responses were in the areas of (a) compliance; (b) effective control of HIV transmissions; (c) teaching athletes about HIV/AIDS outside the athletics setting; (d) allowing HIV-positive athletes to compete in contact sports; (e) the amount of federal and state control necessary for effective HIV transmission, prevention, and
protection; and (f) the right to refuse to treat HIV-positive individuals within the athletics setting.
SUMMARY OF FINDINGS, CONCLUSIONS,
AND RECOMMENDATIONS

This chapter includes a summary of the investigation and a discussion of the findings derived from the analysis of data collected from a survey instrument. The survey instrument consisted of three sections: (a) a demographic section, (b) a knowledge scale section, and (c) an attitude scale section. Also included are the conclusions drawn from the findings, the implications based upon the findings, and recommendations for future research.

Summary of the Study

Apparently, basic knowledge of HIV transmission-prevention and protection techniques or the medical statistics concerning the progression of the HIV/AIDS dilemma are not significant deterrents for effectively modifying the high-risk behaviors of certain individuals. The documented progression of HIV reveals that various individuals with a high-risk behavior profile continually make poor personal health choices which result in increased opportunities for transmitting HIV.

The HIV/AIDS progression is not just another virus/syndrome acknowledged and studied by biotechnicians, medical scientists, and social science researchers. The HIV/AIDS dilemma is a "uniquely devastating medical and social phenomenon," because of: (a) the global scope of HIV infection rates;
(b) HIV's extraordinary mortality rate; (c) the interaction with other infectious diseases; and (d) the life-threatening affects of HIV and AIDS upon young adults in their most productive years (Mann & Tarantola, 1993, p.41).

The inadequacy and fragmentation of public health education programs reflect that they are not effectively decreasing HIV's progression. For administrative leadership, both outside and inside the higher education setting, to come to terms with HIV/AIDS as a progressing disease “demands a broad vision of the social factors that make individuals vulnerable to HIV infection and a systematic implementation of techniques to reduce that vulnerability” (Mann & Tarantola, 1993, p. 42). William Bennett (Geyer, 1993) regards the social factors discussed by Mann and Tarantola as “social regression.” He feels that social regression is rooted in the lack of society's members to accept personal responsibility and accountability for effectively managing risk-free personal health choices and behaviors.

Significance of the Study for Higher Education

Continued progression of HIV/AIDS should not be regarded as that of just another category of disease(s) within the medical science and social science sectors, particularly within the higher education setting. The higher education sector is accountable for enhanced HIV educational awareness interventions for the entire study population, resulting in effective behavioral modifications necessary to curtail any possibility for continued HIV transmission infection rates among our nation's youth and young adult populations.

Education is still the most viable tool to significantly reduce the chances for increased HIV infections. The institution of higher education and its community of professionals and support personnel share an ethical and moral responsibility for providing adequate access to HIV/AIDS prevention education through effective intervention and health care services (ACHA, 1989). Sports management
personnel within the college athletics setting should plan and implement educational interventions for improved knowledge and understanding of specific HIV transmission, prevention, and protection implications that reflect attitude changes and behavior modification of athletes and staff members under their administrative care.

The reinforcement of positive changes in college athletes' risk-free health choices can be enhanced when head athletics administrators, sports health care practitioners, and their respective support personnel consider HIV transmission a critical health care issue in college sports programs. Intercollegiate athletes continue to face increased risk for HIV infection through exposure to blood-borne pathogens and through making high-risk personal health and behavior choices. A personal health risk remains for athletes when they choose to participate within college sports programs in which HIV transmission-prevention safeguards are lacking or have been inadequately planned and implemented.

Intercollegiate athletics is one example of an area needing increased prevention and protection of HIV transmission among student athletes. There is a current void of research pertaining to HIV transmission prevention issues within the intercollegiate athletics setting. Only two known studies have investigated knowledge and attitude levels within the athletics setting: Dewald (1992) conducted the first published study in higher education addressing HIV and AIDS knowledge levels among 112 student athletic trainers from five college curriculum programs approved by the National Athletic Trainers' Association; and Boyle et al. (1995) conducted the first published study to investigate athletic trainers in the field actively serving as practitioners in athletic health care. The latter study’s subjects were from across the state of Pennsylvania and were surveyed regarding their level of HIV/AIDS knowledge and their attitudes toward treating athletic injuries of HIV+/AIDS athletes.
The problem of the present study was to investigate and compare knowledge and attitude levels of head athletics directors and head athletic trainers in the Southwest (Division 1A) and Southland (Division 1AA) Conferences concerning HIV and AIDS issues related to transmission, prevention, and protection within intercollegiate athletics programs in higher education. This study was a qualitative investigation with the specific purpose of generating data posed from the following research questions:

Research Questions

1. Are there any significant differences between the knowledge of head athletics directors and head athletic trainers in the Southwest and Southland Conferences concerning HIV and AIDS issues related to transmission, prevention, and protection affecting the delivery of quality athlete health care services for athletes and staff members within Division 1A and 1AA intercollegiate athletics programs?

2. Are there any significant differences between the attitudes of head athletics directors and head trainers in the Southwest and Southland Conferences concerning HIV and AIDS issues related to transmission, prevention, and protection affecting the delivery of quality athlete health care services for athletes and staff members within Division 1A and 1AA intercollegiate athletics programs?

The target population of this study consisted of all actively serving head athletics directors and head athletic trainers in the Southwest (SWC) and Southland (SLC) Conferences, representing Division 1A and 1AA intercollegiate athletics programs during the 1994 fall semester. Overall, N = 28 represents 82.4% (28 of 34) of the accessible participants from the total population of head directors and head trainers within the SWC and SLC. Regarding the percentage of participation between the two groups, 75% of the SWC and SLC (12 of 16) athletics directors participated from the two athletics conferences. Concerning the
athletics trainers' group, 89% of the SWC and SLC (16 of 18) athletic trainers participated in the study.

Discussion of the Findings

On the basis of the data collected, the analysis assured a representative view from the participants in accordance with research questions developed for this study. The summary of the findings are reported according to the layout of the three-section survey developed for this study, consisting of (a) the demographics analysis, (b) the knowledge level analysis, and (c) the attitude items/topics analysis.

Survey Section 1: Demographic Profiles and Findings

The demographic section of the survey instrument provided for 54 responses from each subject participating in this study. When the demographic section items’ choices for response received a higher percentage from each group’s membership, the item’s description was added with other survey section items to formulate the combined characteristics for the director and trainer profiles. The demographic profiles for head athletics directors and head athletic trainers are reported in Chapter 4, Table 3 (Items 1 through 6), Table 4 (Items 7 through 9), and Table 5 (Items 10 through 14).

Athletics Directors’ Profile

As a representative profile of all head athletics directors participating in this study, the typical director is a 50+ year-old white married male who has served as an assistant director for 11 to 12 years and 4 to 5 years as a head athletics director for a state university. The typical head director for athletics in this study has earned a masters degree, without holding any type of state or professional certification related to athletics administration or sports management. Two of the 12 athletics directors (17%) in this study have earned doctorates.
The typical head athletics director has not participated in any type of continuing education directly related to acquiring enhanced knowledge and understanding concerning HIV transmission, prevention, and protection issues within the athletics setting. Primary information sources concerning HIV and AIDS issues are reviewed by the head director through newspapers, followed secondly by television and radio special programming. As secondary information sources related to HIV/AIDS issues, athletics directors utilize first, pamphlets and books; second, professional literature; and third, special programming through television and radio. As preferred information sources related to HIV/AIDS issues, athletics directors typically would first like to utilize workshops and television/radio programming, followed secondly by reading professional literature and utilizing specially printed pamphlets and brochures.

While on the job as a professional administrator within the athletics setting, the head athletics director will utilize community/campus based resources related to HIV/AIDS issues through first approaching his athletic training staff because they are more accessible and knowledgeable. The typical director's additional outreach choices (in order of usage, preference, and/or availability) were campus health centers, the teams' physician(s), the county health department, and the local blood center.

The typical athletics director for this study does not know anyone within the athletics setting who is HIV-positive, nor does he know of individuals outside the professional workplace who are HIV-positive. But 2 of 12 directors (17%) did know individuals who are HIV-positive outside their professional workplaces. Regarding community-related service work as a professional, the typical athletics director has been involved in local civic club activities within the past 3 years.

The typical athletics director for this study stated that he works in an athletics workplace with established departmental HIV and AIDS education and
service policies, but feels the policies are not adequate to meet the health care needs of the student athletes and athletics staff members. The director feels that he is currently working in an athletics workplace that has an OSHA regulatory HIV/AIDS health care service plan on file and accessible to student athletes, but he does not feel it is an adequate plan, nor is he fully aware of the specifics of OSHA's printed regulations.

Head Athletic Trainers' Profile

As a representative profile of all head athletic trainers participating in this study, the typical athletic trainer 42-to-46 year old white married male who has served as an assistant trainer for 9 to 10 years and as a head athletic trainer for 9 to 10 years for a state university. The typical head trainer in this study has earned a masters degree and holds a state and professional certification as a certified athletics trainer.

The typical head athletic trainer has participated in one or more workshops and inservice education seminars related to acquiring enhanced knowledge and health care service understanding specifically concerning HIV transmission, prevention, and protection techniques within the athletics setting. The head athletic trainer's primary information sources concerning HIV and AIDS issues are, first, through attending professional workshops; secondly, through reviewing medical journals; and thirdly, through professional literature. As secondary information sources related to HIV/AIDS issues, the typical athletic trainer first utilizes the professional literature; secondly, pamphlets and books; and thirdly, through workshops. As preferred information sources related to HIV/AIDS issues, the profiled athletic trainer in this study chose attending workshops, followed by reading professional literature. Reading pamphlets was the trainer's third choice regarding sources related to HIV/AIDS issues in the athletics setting.
As a professional health care service administrator and practitioner, the typical head trainer utilizes community/campus based resources related to HIV/AIDS issues through first approaching the team’s physician(s) due to the expertise of medical doctors regarding HIV/AIDS related information and techniques. The typical trainer’s additional outreach choices are county health department personnel and the campus health center’s staff members.

The typical head athletic trainer for this study is not likely to know anyone within his specific athletics setting who is HIV-positive, although 2 of 16 trainers (13%) in the study did know of HIV-positive individuals within their respective workplaces. Nor is the typical head trainer likely to know an HIV-positive individual outside the workplace, but 4 of 16 trainers (25%) did personally know HIV-positive individuals outside the athletics setting.

Regarding community-related service work as a professional, the typical head trainer has been involved in activities within civic clubs and church sports leagues. He has also been involved with a city recreational department youth sports teams within the past 3 years.

The profiled head athletic trainer for this study states inversely that he works in an athletics setting that does not have established departmental HIV/AIDS education and service policies. Although 38% of the trainers stated that they did work in an athletics setting with established departmental HIV and AIDS education and service policies, 31% stated that, in their professional opinion, those policies were inadequate.

The typical head trainer inversely stated that he works within an athletics setting that does not have an OSHA regulatory HIV/AIDS health care service plan on file and accessible to student athletes. Although 31% of the trainers in the study did work in an athletics setting with an OSHA-mandated service plan, 19% stated that the file plans, in their professional opinion, were inadequate.
Regarding OSHA’s HIV transmission-prevention regulations for the workplace, the profiled head athletics trainer stated that he is fully aware of the specific regulations addressed by OSHA and feels that his athletics department fully complies with OSHA’s regulations. Conversely, only a third (33%) of the head directors stated they were fully aware of OSHA’s regulations and 33% feel their athletics departments fully comply with OSHA’s HIV transmission-prevention regulations for the workplace.

**Similarities of Profile Characteristics**

It was found that the demographic profiles established from the data compiled and comparatively analyzed in this study show that head athletics directors and head athletic trainers are homogeneous with regards to the following descriptive characteristics: (a) similar characteristics, including gender, ethnicity, marital status, state employment, prior experience, and education; and (b) marginally similar characteristics, including age, experience as head administrators within the athletics setting, community service activities, knowledge of HIV-positive individuals both within and outside the athletics setting, and the degree of non-awareness of various professional groups’ HIV transmission, prevention, and protection guidelines and recommendations.

**Differences in Profile Characteristics**

Concerning the differences between the two groups’ profiles, the following characteristics were established: (a) dissimilar characteristics, including state/professional certification status; continuing education activities; community/campus use of resources; and primary, secondary and preferred resource utilization relating to HIV/AIDS issues; and (b) perceived workplace compliance differences, including perceptions of working within an athletics workplace (with/without) established departmental HIV and AIDS education and service policies; and the two study groups’ perceptions of whether OSHA’s HIV
transmission prevention and protection regulations for the workplace (were/were not) implemented at the time of the study.

Survey Section 2: Knowledge Scale Topics and Findings

The following is a discussion of analyzed data concerning Research Question 1 in this study. The knowledge section of the survey instrument allowed for 103 responses for each subject participating in the study (N = 28), yielding a total of 2,884 responses. Knowledge scale items were related to HIV transmission prevention and protection and other HIV/AIDS related issues concerning intercollegiate athletics.

Inquiry was made to reveal levels of knowledge between the study's subjects concerning the following topical issues: susceptibility to HIV; symptomatology; modes and extent of HIV transmission (nationally and internationally); HIV and AIDS nomenclature; new statistical trends in HIV transmission among various groups; associated risk behaviors; consequences of risk behaviors; prevention and protection measures; effectiveness of HIV awareness education; and medical science research effectiveness. Additional inquiry was made concerning topics related to the severity of HIV/AIDS as a public health problem; drugs used in treating HIV infection; HIV vaccine development progress; HIV testing; blood collection/donation related issues; HIV and its relationship to STDs and HBV; resources used to curtail increased HIV infections; HIV and AIDS progression characteristics; annual infections and deaths related to HIV and AIDS; and HIV transmission within the athletics setting.

The F distribution (F ratio) was used in the study as the parametric measure of two independent samples concerning the analysis of variance (ANOVA). The Tukey/Kramer (TK) statistical method utilizing the Q statistic was computed for unequal group sizes as suggested for post hoc multiple comparison tests analysis.
A significant F ratio was determined at the .05 level of confidence regarding a difference in the knowledge scale mean scores for the two groups in the study. Tables 8, 9, 10, 11, and 12 provide a pictorial summary of reported results from data analysis.

Further analysis was conducted concerning the breakdown of the two primary groups into subgroups concerning the SWC-T/SLC-T athletic trainers’ group mean scores and the SWC-D/SLC-D athletics directors’ group mean scores. The Tukey/Kramer (TK) statistical method utilizing the Q statistic was computed for unequal group sizes as suggested for post hoc multiple comparison tests analysis (Hinkle et al., 1988, chap. 16). The calculated values of the Q statistic for the TK method are found in Table 11. The analyzed knowledge scale data lead to the following observations.

1. Concerning the study’s two independent population groups, head athletic trainers (SWC-T/SLC-T, n = 16) and head athletics directors (SWC-D/SLC-D, n = 12), the athletic trainers’ group knowledge scale mean score was found to be significantly different (higher) when compared to the athletics directors’ group knowledge scale mean score at the .05 level of confidence concerning both a significant F ratio (where N = 28 with 26 degrees of freedom) and the ANOVA, utilizing the Tukey/Kramer statistical method incorporating the Q statistic (where N = 28, r = 4, with 24 degrees of freedom).

2. The subgroup consisting of the SWC-trainers (n = 9) has a knowledge mean score that is significantly different (higher) at the .05 level of confidence when compared to the knowledge mean score belonging to the SLC-directors’ subgroup (n = 7).

3. The subgroup consisting of SLC-trainers (n = 7) has a knowledge mean score that is significantly different (higher) at the .01 level of confidence when
compared to the knowledge mean score belonging to the SWC-directors' subgroup (n = 5).

4. The subgroup consisting of SLC-trainers (n = 7) has a knowledge mean score that is significantly different (higher) at the .01 level of confidence when compared to the knowledge mean score belonging to the subgroup SLC-directors’ subgroup (n = 7).

5. There were no significant differences found when comparing knowledge mean scores between the SWC-trainers and SLC-trainers, SWC-trainers and SWC-directors, and SWC-directors and SLC-directors.

HIV and AIDS-related knowledge levels were determined for the following two groups in the study.

1. **Athletics directors.** The population group consisting of head athletics directors from the SWC and SLC have a moderate to low knowledge level regarding HIV transmission, prevention, and protection issues, as well as other related HIV/AIDS issues concerning the athletics setting in higher education.

2. **Athletic trainers.** The population group consisting of head athletic trainers from the SWC and SLC have a moderate to high knowledge level regarding HIV transmission prevention and protection issues, and including other related HIV/AIDS issues concerning the athletics setting in higher education.

3. **Ranking between subgroups.** According to the knowledge scale mean scores computed from the raw testing data derived from the survey instrument, the ranking of significance differences between the subgroups’ means were as follows: (a) SLC-T athletic trainers, n = 7; (b) SWC-T athletic trainers, n = 9; (c) SWC-D athletics directors, n = 5; and (d) SLC-D, n = 7.
Survey Section 3: Attitude Scale Issues and Findings

The following is a discussion of analyzed data concerning Research Question 2 in this study. The attitude scale was developed in a Likert-type format. The format allowed for five different responses ranging from strongly agree, agree, undecided, disagree, and strongly disagree. The attitude section of the survey instrument allowed for 101 responses for each subject participating in the study (N = 28), yielding a total of 2,824 responses. All responses formed the attitude section's data used for comparative analysis of similarities and differences. Data were tallied and categorized, and the various groups' percentages of responses for each item was determined for a qualitatively descriptive analysis. Attitude scale items were related to HIV transmission, prevention, and protection and other HIV/AIDS-related issues concerning the intercollegiate athletics setting.

Various topics were represented throughout the 101 items on the attitude scale section of the survey. Inquiry was made to reveal attitudes concerning the following topics (a) comfort level regarding HIV-transmission discussions and the preferred origin for HIV/AIDS educational intervention; (b) responsibility for the effective delivery of HIV/AIDS awareness education and health care services and compliance with various guidelines, recommendations, and/or regulations; (c) the perceived severity of HIV/AIDS as a communicable disease; (d) athletics staff members' sensitivity regarding HIV transmission; (e) personal bias towards the HIV dilemma and public information; and (f) the interaction with HIV-positive individuals.

Additional issues covered in the attitude section included (a) the question concerning the need for terminating a person performing various job functions/duties as a result of his/her HIV-positive and/or AIDS diagnosis; (b) the HIV-positive athlete and the question of competing in contact sports; (c) the issue
of mandatory testing for HIV antibodies campus-wide; (d) the question of
protecting confidentiality and HIV-positive status within the college setting;
(e) improvement of HIV-related health care services to all athletes and staff
members; and (f) improvement of HIV-education awareness levels among all
athletes and staff members within the intercollegiate athletics setting. The various
issue-related topics were placed into 12 categories, which were used in a
descriptive format for the analysis of data.

Summary of Attitudinal Profiles for Athletics Directors and Trainers

Descriptive analysis yielded attitudinal profiles for head athletics directors
and head athletic trainers resulting from data compiled from recorded responses to
101 statements in the survey instrument’s Section III. Each group’s majority
percentage of response to each statement on 12 HIV/AIDS-related issues in
intercollegiate athletics was entered into each group’s attitudinal profile. Any
group’s largest percentage of response to each statement was also included in the
profile.

Athletics Directors’ Attitudinal Profile

The typical head athletics director participating in this study exhibited the
following attitudinal profile characteristics regarding HIV/AIDS-related issues in
intercollegiate athletics within the higher education setting:

Comfort level and preferred place for education intervention. The profiled
head athletics director is not uncomfortable discussing HIV/AIDS-related topics
with athletes and departmental staff members, although he can best be described as
a professional possessing moderate-to-low-level knowledge concerning
HIV/AIDS-related issues. He prefers that any attempts for HIV educational
interventions be conducted within the athletics setting.

Responsibility for effective intervention. The athletics director feels
strongly that both his institution and his athletics department have responsibility
for the delivery of HIV/AIDS-transmission and protection education to athletes and staff members. He feels that his institution has a greater responsibility than does his athletics department regarding this issue. As a professional athletics administrator, he feels that it is his responsibility to ensure that effective delivery of HIV/AIDS-transmission and protection education has been achieved concerning the people under his departmental supervision. The athletics director feels strongly that his institution, athletics department, and he, as head administrator, all have an ethical, moral, and legal responsibility to effectively provide HIV/AIDS transmission protection education to all athletes and departmental staff members.

He feels that his personal legal responsibility, as the head administrator in the department, is marginally less than his ethical (professional) and moral (societal) responsibilities, but greater than he views his respective department's and institution's legal responsibilities concerning HIV/AIDS prevention and protection safeguards. This attitude trait was observed from data analysis even though, as head director for athletics for his institution, he has not personally been involved in any type of continuing education programs, professional seminars, or related educational activities (other than reading or viewing activities) to enhance his own HIV/AIDS-knowledge level regarding HIV transmission prevention and protection education and related issues concerning the athletics setting.

Compliance campuswide. As head athletics director, he feels that his own institution is fully complying with various professional/educational/governmental recommendations, guidelines, and/or regulations related to HIV transmission prevention and protection controls established by the AAP, AMA, AOA, ACHA, AGB, NCAA, USDHHS (CDC), and/or OSHA.

Compliance within the athletics department. Similarly, the head athletics director feels that his department is fully complying with the same effectiveness as his own institution's efforts to be in compliance regarding the same. The director
feels a need for government regulation within the college setting to protect all college personnel and students from HIV transmissions, and he feels that the governmental intervention should specifically include the athletics setting.

**HIV as preventable dilemma.** When broadening the scope regarding HIV transmissions occurring across the campuswide community, the athletics director feels that HIV transmissions can be a preventable public health dilemma for college personnel and the student body. But the director remains undecided about whether future HIV transmissions can be prevented from occurring within the athletics setting.

**Perceived severity of HIV/AIDS.** Regarding the severity of HIV/AIDS-related health problems as a public health dilemma, the head director perceives that HIV/AIDS-related illnesses are not a health problem within his athletics department currently, but he does feel that it will be a serious health problem in the future. The athletics director does not know any HIV-positive individuals from within his athletics setting, but he does know of such individuals outside the college athletics setting. He feels that HIV/AIDS-related illnesses are producing health problems within intercollegiate athletics, and he feels more strongly that the HIV/AIDS dilemma is a national health problem. Locally, he feels that the HIV/AIDS dilemma is a campus health problem within his particular campus setting, but is undecided whether it will remain to be a continuing problem in the future. He feels even more strongly that HIV/AIDS is a health problem within his off-campus community setting, but again, he remains undecided whether the HIV/AIDS dilemma will continue to be a public health problem into the future.

**Sensitivity to workplace and non-workplace health risks.** The head athletics director is not personally threatened concerning any perceived possibilities regarding non-workplace health risks for acquiring HIV. He maintains a lesser degree of non-threatened perception regarding his personal
concerns about the possibilities of acquiring HIV infection within the athletics workplace.

Perceived risks of HIV/HBV infections for athletes/staff members. The head athletics director is concerned about the possible risks of infections from HIV and HBV transmissions within the athletics setting. The head director feels that the risks for infection from HBV transmission is greater for athletes and departmental staff than the risk of infection from HIV transmission within the athletics workplace. The head director does not feel he has any valid reason to be concerned regarding the possibility for personally becoming HBV-infected from exposure within the athletics setting.

Perceived HIV media exaggeration/punishment for becoming HIV+. The head director does not feel that the HIV/AIDS dilemma is blown out of proportion in the news media and/or professional literature regarding a public health problem. The director does not feel that becoming HIV-infected is a “punishment” for wrong personal health choices practiced through risky activities.

HIV transmission and homosexual/IV drug use/minorities’ behavior. The director feels strongly that the HIV/AIDS public health dilemma has a place for debate and discussion within the athletics setting. He also feels that becoming HIV-positive is not currently just a result of homosexual behavior, IV drug use, or a minority population health issue causing continued HIV transmissions.

Right to refuse to work with an HIV+ coworker. The head athletics director feels that he does have the right to refuse to work with a coworker who has become HIV-positive. The director feels he does not have the right to delay treatment for an HIV-positive athlete, but the director would not attend a bleeding HIV-positive athlete if, as the health care practitioner, he did not have access to protective equipment prior to treatment in a non-life-threatening situation within the athletics setting.
Allowing HIV+ athletes/staff members to remain. The head director would allow to remain within the athletics setting, if it were left up to him, an athlete or staff member who became HIV-positive. He has stronger positive feelings regarding an HIV-infected staff member remaining within the athletics setting than he does an HIV-infected athlete. The director is undecided if he would personally interact differently with an HIV-infected athlete than he would with non-infected athletes. He also remains undecided if he would interact differently with HIV-infected and non-infected staff members within the athletics setting.

Termination of job duties with HIV+ diagnosis. The head athletics director feels that “anyone” who is diagnosed with HIV should not be allowed to continue performing health care-related job functions and duties within the athletics setting after becoming HIV-infected. This particular attitude trait is in direct contrast to his stated positive feelings regarding specifically allowing HIV-positive athletics personnel to continue with related health care job functions and duties while serving within the athletics setting.

Termination of job duties with AIDS diagnosis. The head athletics director feels that “anyone” who is diagnosed with AIDS should not be allowed to continue performing health care-related job duties and techniques while serving within the athletics setting. But the director’s negative attitude changes to an undecided attitude concerning the allowance for AIDS diagnosed “athletics staff personnel” to continue performing student athlete health care-related services.

Personal HIV+ diagnosis as head administrator. The athletics director is undecided concerning whether he would remain in his current position of employment if he were to become HIV-positive or were diagnosed with AIDS while serving within the athletics setting.

HIV+ athletes and the question of competing. The head director feels that HIV-positive athletes should not be allowed to participate in contact sports. He
feels that any athlete diagnosed HIV-positive should be encouraged to participate in noncontact sports of his/her choice. He also feels that any athlete who is HIV-positive should be allowed to attend regularly scheduled classes.

Mandatory testing for HIV antibodies. It is the director’s attitude that the student body, including student athletes, faculty, and campus support staff members, should not be required to be tested for HIV antibodies within the campus setting. Nor does the athletics director believe that any of the athletics department’s staff members should be required to be tested for HIV antibodies while within the athletics setting.

Protecting confidentiality and HIV+ status. The athletics director feels that it is his civic right to be told if an individual in his community was diagnosed HIV-positive and he had administrative and/or direct health care service responsibilities. He also feels that it is his professional right, as the head departmental administrator, to be immediately told if an athlete or staff member is diagnosed HIV-positive. And he feels that he should be informed if an HIV-positive student is attending any university functions, athletics events, or classes. The director feels that all athletes and department personnel have the right to be informed if another athlete or staff member is diagnosed HIV-positive while participating in the athletics setting.

It is the attitude of the director that any parent of an HIV-infected athlete has the right to be informed of their offspring’s health status when the athlete is participating within the athletics setting. He also feels it is his “professional responsibility” to inform parents of their child’s HIV-positive status, but remains undecided if it is his professional responsibility to inform athletes and department staff members of any increased risk for HIV infection due to someone’s being HIV-positive within the athletics setting. He feels that all faculty members should be informed if an HIV-positive student is attending any of their classes.
The athletics director feels that it is his right to be told if he is working with an HIV or HBV-infected person within the athletics setting. The athletics director feels that, as the department's top administrator within the athletics setting, it is his right to know the name of the individual who is HIV or HBV-positive and who may be transmitting HIV or HBV, once exposed and diagnosed HIV or HBV-positive.

**Improving health care services to athletes/staff members through research, compliance, and inservice education.** The head athletics director feels that more research needs to be conducted within the athletics setting regarding HIV transmission prevention and protection education and other HIV/AIDS-related student athlete health care services and techniques. He remains undecided if HIV transmission, prevention, and protection guidelines/regulation compliance is effectively being enforced within the athletics setting. As athletics director, he feels that there is a need for HIV related inservice education for athletics directors, departmental support staff members, athletic trainers and staff members, coaching staff members, and all athletes within the intercollegiate athletics setting.

**Improving HIV-transmission awareness levels for athletes/staff members.** The attitude profile of the typical athletics director participating in this study reveals his belief that the HIV/AIDS dilemma should be a major concern to all professionals within the higher education community and of particular concern to administrators and health care practitioners within the intercollegiate athletics setting. He strongly feels athletes should be continually educated about HIV transmission prevention and protection related topics within the college setting. He believes that the athletics setting is the more appropriate place for a comprehensive discussion and instruction of related HIV transmission prevention and protection issues taught to athletes while under his department's supervision.
Athletic Trainers’ Attitudinal Profile

The typical head athletic trainer who participated in this study exhibited the following attitudinal profile characteristics regarding HIV/AIDS-related issues concerning intercollegiate athletics.

Comfort level and preferred place for education intervention. The head athletic trainer is not uncomfortable discussing HIV and AIDS related topics with athletes and departmental staff members. The head trainer can be best described as a professional possessing moderate-to-high-level knowledge concerning HIV/AIDS-related issues. He prefers that any attempts for HIV educational interventions be conducted within the athletics setting.

Responsibility for effective intervention. The athletic trainer feels strongly that his institution and his athletics department have responsibility for the delivery of HIV/AIDS transmission protection education to athletes and staff members. He feels that his institution for higher learning and his athletics department share equal responsibility regarding this issue. As a professional athletics health care administrator and practitioner, he feels that it is primarily his responsibility to provide for the effective delivery of HIV/AIDS transmission protection education to the people under his departmental supervision.

The athletic trainer feels strongly that his institution, athletics department, and he, as head athletics health care services administrator and practitioner, all have an ethical, moral, and legal responsibility to effectively provide HIV/AIDS transmission protection education to all athletes and departmental staff members. He feels that his legal responsibility is marginally less than his ethical (professional) and moral (societal) responsibilities. He feels that he has a greater legal responsibility as the department’s head health care specialist for athletics than any associated legal responsibilities shared by his department and institution.
Compliance campuswide. As head athletic trainer, he feels his own institution is fully complying with various professional/educational/governmental recommendations, guidelines, and/or regulations related to HIV transmission prevention and protection controls established by the AAP, AMA, AOA, ACHA, AGB, NCAA, USDHHS (CDC), and/or OSHA.

Compliance within the athletics department. Similarly, the head athletic trainer feels that his department is fully complying with the same effectiveness as his own institution's efforts to be in compliance regarding the controls cited above. The trainer feels a need for government regulation within the college setting to protect all college personnel and students from HIV transmissions, but he remains undecided about a need for governmental intervention within the athletics setting.

HIV as preventable dilemma. When broadening the scope regarding HIV transmissions in the campuswide community, the athletic trainer feels that HIV transmissions can be a preventable public health dilemma for college personnel and the student body. Likewise, the head trainer believes that future HIV transmissions can be effectively prevented within the athletics setting.

Perceived severity of HIV/AIDS. Regarding the severity of HIV/AIDS-related health problems as a public health dilemma, the head trainer perceives that HIV/AIDS-related illnesses are not a health problem within his athletics department currently, and he does feel that HIV/AIDS-related health problems will become a serious health concern in the future. The athletic trainer personally knows of HIV-positive individuals from within and from outside his athletics workplace. He feels HIV/AIDS-related illnesses are not producing health problems within the intercollegiate athletics setting, but feels strongly that the HIV/AIDS dilemma is a national health problem. Locally, he feels that the HIV/AIDS dilemma is a campus health problem within his particular college setting and he feels it will be a continuing problem into the future. He feels even
more strongly that HIV/AIDS is a health problem in the off-campus community setting, and he feels that the HIV/AIDS dilemma will continue to be a public health problem for his community.

**Sensitivity to workplace and non-workplace health risks.** The head athletic trainer does not feel personally threatened concerning any perceived possibilities regarding non-workplace health risks for acquiring HIV. He also maintains a lesser degree of non-threatened perception regarding his personal concerns about the possibilities for acquiring HIV infection within the athletics workplace.

**Perceived risks of HIV/HBV infections for athletes/staff members.** The head athletic trainer is concerned about the possible risks of infections from HIV and HBV transmissions within the athletics setting. The head trainer feels that the risks for infection from HBV transmission are greater for athletes and departmental staff personnel than the risk of infection from HIV transmission within the athletics workplace. The head trainer does not feel he has any valid reason to be concerned regarding the possibility for personally becoming HBV infected from exposure within the athletics setting.

**Perceived HIV media exaggeration/punishment for becoming HIV+.** The head trainer does not feel that the HIV and AIDS dilemma is blown out of proportion in the news media and/or professional literature regarding a public health problem. The trainer does not feel that becoming HIV infected is a punishment for wrong personal health choices practiced through risky activities.

**HIV transmission and homosexual/IV drug use/minorities’ behavior.** The trainer feels strongly that the HIV/AIDS public health dilemma has a place for debate and discussion within the athletics setting. He also feels that becoming HIV-positive is not currently just a result of homosexual high-risk sexual behavior, IV drug use, or a minority population health issue contributing to continued HIV transmissions.
Right to refuse to work with an HIV+ coworker. The head athletic trainer feels that he does not have the right to refuse to work with a coworker within the athletics setting who has become HIV positive. The trainer feels he does not have the right to delay treatment for an HIV-positive athlete, but the trainer would not attend a bleeding HIV-positive athlete if, as the health care practitioner, he did not have access to protective equipment prior to treatment in a non-life-threatening situation within the athletics setting.

Allowing HIV+ athletes/staff members to remain. The head trainer would allow to remain within the athletics setting, if it were his decision, an athlete or staff member who became HIV-positive. He has stronger positive feelings regarding an HIV-infected staff member remaining within the athletics setting than he does an HIV-infected athlete. The trainer would not personally interact differently with an HIV-infected athlete than he would with non-infected athletes within the athletics setting. He also would not interact differently with HIV-infected and non-infected staff members within the athletics setting.

Termination of job duties with HIV+ diagnosis. The head trainer feels that anyone who is diagnosed with HIV should be allowed to continue performing health care-related job functions and duties within the athletics setting. He holds stronger feelings regarding specifically allowing HIV-positive athletics personnel to continue with related health care job functions and duties while serving within the athletics setting.

Termination of job duties with AIDS diagnosis. The head athletic trainer is undecided whether anyone who is diagnosed with AIDS should be allowed to continue performing health care-related job duties and techniques in the athletics setting. But the trainer’s undecided attitude changes to a positive attitude concerning the allowance for AIDS-diagnosed athletics staff to continue performing student athlete health care-related services within the athletics setting.
Personal HIV+ diagnosis as head administrator. The head trainer feels that he would remain in his current position of employment if he were to become HIV-positive, but would resign if diagnosed with AIDS while serving within the athletics setting.

HIV+ athletes and the question of competing. The head trainer feels that HIV-positive athletes should not be allowed to participate in contact sports, but remains undecided whether an athlete diagnosed HIV-positive should be encouraged to participate in noncontact sports of his/her choice. He strongly feels that any athlete who is HIV-positive should be allowed to attend regularly scheduled classes.

Mandatory testing for HIV antibodies. It is the trainer’s attitude that the student body, including student athletes, faculty, and campus support staff members, should not be required to be tested for HIV antibodies within the campus setting. Nor does the athletic trainer believe that any of the athletics department’s staff members should be required to be tested for HIV antibodies while within the athletics setting.

Protecting confidentiality and HIV+ status. The athletic trainer feels that it is his civic right to be told if an individual in his community has been diagnosed HIV-positive while he, as head trainer, has administrative and/or direct health care service responsibilities. He also feels that it is his professional right, as the head department health care administrator/practitioner, to be told immediately if an athlete or staff member is diagnosed HIV-positive. But he feels that he should not be informed if an HIV-positive student is attending any university functions, athletics events, or classes on campus. Also, the head trainer feels that athletes and department personnel do not have the right to be informed if another athlete or staff member is diagnosed HIV-positive while participating in the athletics setting.
It is the attitude of the head trainer that any parent of an HIV-infected athlete has the right to be informed of their offspring’s health status when the athlete is participating within the athletics setting. But he feels it is not his “professional responsibility” to inform parents of their child’s HIV-positive status, nor does he feel it is his professional responsibility to inform athletes and department staff members of any increased risk for HIV infection due to someone’s being HIV-positive within the athletics setting. Additionally, he does not feel that faculty members should be informed if an HIV-positive student is attending any of their classes.

The athletic trainer feels that it is his right to be told if he is working with an HIV or HBV-infected person within the athletics setting. The athletic trainer feels that it is his right, as the department’s top health care administrator and practitioner within the athletics setting, to know the name of the individual who is HIV or HBV-positive and who may be transmitting HIV or HBV, once he has been exposed and diagnosed HIV or HBV-positive.

**Improving health care services to athletes/staff members through research, compliance, and inservice education.** The head athletic trainer feels more research needs to be conducted within the athletics setting regarding HIV transmission, prevention, and protection education and other HIV/AIDS related student athlete health care services and techniques. He feels that HIV transmission, prevention, and protection guidelines/regulation compliance is adequately being enforced within the athletics setting. As head trainer, he feels that there is a need for HIV related inservice education for athletics directors, departmental support staff members, athletic trainers and staff members, coaching staff members, and all athletes within the intercollegiate athletics setting.
Improving HIV-transmission awareness levels for athletes/staff members.

The attitude profile of the typical athletic trainer participating in this study reveals his belief that the HIV/AIDS dilemma should be a major concern to all professionals within the higher education community, and that it should be of particular concern to administrators and health care practitioners within the intercollegiate athletics setting. He strongly feels that athletes should be continually educated about HIV transmission, prevention, and protection related topics within the college setting. He believes that the athletics setting is the more appropriate place for a comprehensive discussion and instruction of related HIV transmission, prevention, and protection issues taught athletes while under his department's supervision.

**Observed Agreement and Disagreement Between Directors and Trainers**

**Agreement on issues.** Twelve HIV/AIDS-related issues were profiled within the attitude section of the survey instrument, including 101 statements. Head athletics directors and head athletic trainers agreed on 74 statements (74%) in which both groups' percentages of responses exceeded 51% agreement within the groups. An additional 11 statements were agreed on by the respondents. The percentages of agreement represented the largest proportion of the individual group's responses per statement, but fell below a 51% majority representation. Overall, the study's subjects agreed on 85% of the survey's 101 attitude statements related to HIV/AIDS issues.

**Disagreement on issues.** Head athletics directors and head athletic trainers proportionately disagreed within three specific HIV/AIDS related issue areas: (a) the perceived severity of the HIV/AIDS dilemma, 3 statements; (b) protecting confidentiality, 7 statements; and (c) interaction with HIV-positive individuals, 6 statements. Overall, a majority of the subjects disagreed on 16 statements (16%) concerning 3 of the 12 (25%) issues relating to the HIV/AIDS dilemma within the
general public health sector, the intercollegiate college setting, and/or specifically within the respondents' respective campus athletics settings.

**Undecided responses to issue statements.** Regarding undecided responses to statements in the attitude section, the head athletics directors' group responded to 25 statements in which the percentage for undecided ranged from 33% to 67%. The specific HIV-related issue statements receiving at least 33% concerned (a) perceived severity of the HIV/AIDS dilemma; (b) the effective control of HIV transmissions; (c) the allowing of HIV-positive athletes to compete in contact sports; (d) confidentiality; and (f) required testing for HIV antibodies within the college setting.

The head athletic trainers' group responded to 17 statements in which the percentages of undecided responses ranged from 25% to 50% for various statements. Specific HIV-issue statement areas that received at least 25% of undecided responses were in the areas concerning (a) compliance with OSHA's HIV control regulations for the workplace; (b) effective control of HIV transmissions; (c) teaching athletes about HIV/AIDS outside the athletics setting; (d) the allowing of HIV-positive athletes to compete in contact sports; (e) the necessity of governmental controls for effective HIV transmission prevention and protection; and (f) the right to refuse to treat HIV-positive individuals within the athletics setting.
Conclusions

The following conclusions were determined on the basis of the data gathered, analyzed, interpreted, and reported in this study concerning 258 survey statements from (N = 28) head athletics directors and head athletic trainers in the SWC and SLC during the fall of 1994.

1. In regard to Research Question 1 developed for this study, athletic trainers, as a primary population group from the SWC and SLC, scored significantly higher on the HIV/AIDS knowledge scale section of the survey instrument at the .05 level and the .01 level of confidence. Subgroup analysis shows that the SLC trainers' subgroup scored significantly higher on the knowledge scale at the .01 level of confidence than the SWC and SLC athletics directors' subgroups. The SWC trainers' subgroup scored significantly higher on the knowledge scale at the .05 level of confidence than did the SLC athletics directors' subgroup.

2. It was determined from this study that the head athletic trainers have a moderate-to-high-level of knowledge concerning HIV transmission, prevention, and protection issues and other HIV/AIDS-related issues in the intercollegiate athletics setting.

3. It was determined from this study that the head athletics directors from the SWC and SLC have a moderate-to-low-level of knowledge concerning HIV transmission, prevention, and protection issues and other HIV/AIDS-related issues in the intercollegiate athletics setting.

4. The SLC trainers' subgroup (representing Division 1AA intercollegiate athletics) scored higher on the knowledge scale section of the survey when compared to the other three subgroups from the SWC and SLC, representing both Division 1A and 1AA athletic conferences. Therefore, it can be concluded from this study that HIV/AIDS-issue-related-knowledge levels are not necessarily
higher among head athletics directors or head athletic trainers employed by institutions of higher learning representing Division 1A athletic conferences when compared to the study’s participants who represented Division 1AA athletics conferences within the intercollegiate athletics setting.

5. Demographic analysis of head athletics directors and head athletic trainers reveals that the two groups have attained similar higher education degree levels regarding the earning of masters degrees (directors 75% and trainers 81%). Only two doctoral degrees were earned among the study’s population in the athletics directors’ subgroups, with one each held in the SWC and SLC.

6. A demographic profile difference found between the two primary groups in the study concludes only head athletic trainers (81%) have had formal continuing education concerning HIV transmission, prevention, and protection issues and other HIV/AIDS-related issues concerning the intercollegiate athletics setting.

7. A demographic profile difference found between the two primary groups in this study concludes that only head athletic trainers (100%) have earned any type of professional or state-required certification allowing them to practice in the athletic training profession. Athletics directors are not required by any known professional organization or by state statutes to be certified in the area of intercollegiate athletics administration or sports management.

8. It can be concluded from the analyzed results of this study that when comparing the two groups’ demographic profiles, the head athletics directors’ group (67%) perceive they work in an athletics workplace with established departmental HIV/AIDS education and service policies, whereas the head athletic trainers’ group (38%) perceives, to a much lesser extent that they work in an athletics workplace with established policies. Only 25% of the directors and 31% of the trainers perceive the implemented policies as adequate. The directors (50%)
and the trainers (31%) perceive that their departments comply with OSHA's regulated HIV/AIDS health care service plan, which is required to be on file and accessible to department personnel; only 42% of the directors and 19% of the trainers feel that the service plan is adequate.

9. It can be concluded from this study that when comparing the two groups' established attitude profiles, both groups (directors, 50% and trainers, 50%) marginally perceive that they work, either in a campuswide work environment or athletics workplace that fully complies with HIV transmission, prevention, and protection control guidelines and/or OSHA regulations.

10. Both groups (directors, 75% and trainers, 44%) feel that governmental regulation enforcement is needed for better compliance of OSHA's HIV transmission control regulations in order to protect the student body on campus. Meanwhile, to a lesser extent, 50% of the directors and 31% of the trainers feel governmental regulation enforcement is needed within the college athletics setting regarding the same issue.

11. It can be concluded from this study that both groups (directors and trainers) strongly agree that the responsibility for providing athletes and athletics staff personnel with effective HIV/AIDS-education intervention is an ethical (professional), moral (societal), and legal responsibility to be shared among the institution for higher learning, the athletics department, and the top athletics administrators (head directors and head trainers). Both groups prefer that any planned and implemented educational interventions for student athletes take place within the athletics setting versus elsewhere on or off campus.

12. In regards to Research Question 2, the results show that the attitudinal profiles established from the survey instrument's data reveal that head athletics directors and head athletic trainers from the SWC and SLC agreed on approximately 85% of the statements covering 12 broad HIV/AIDS-related issue
areas within the athletics setting in higher education. Approximately 15% of the survey instrument's attitude statements revealed disagreement between head athletics directors and head athletic trainers concerning various statements contained within 3 of the 12 HIV/AIDS-related issue areas.

13. It can be concluded from the results of this study that even though the SWC and SLC head athletic trainers scored significantly higher on the HIV/AIDS knowledge scale section of the survey than did the SWC and SLC head athletics directors, both groups have similar attitudinal profiles regarding 9 of 12 HIV/AIDS-related issue areas within the intercollegiate athletics setting. Therefore, any measurable difference between the two groups' knowledge levels related to HIV/AIDS issues did not result in attitude profiles that greatly differ concerning 12 broadly related HIV/AIDS issues within higher education and more specifically within the athletics setting.

14. It can be concluded from the results of this study that both groups' attitude perceive an HIV/AIDS public health dilemma to be occurring across the nation, within the higher education setting, and within their own communities. Both groups also perceive a HIV/AIDS public health dilemma to be producing a campus-wide health problem within their respective institutions.

15. Neither group (directors or trainers) in this study believes that there is a current student athlete health problem attributed to HIV/AIDS-related transmissions and illnesses within their campus athletics departments, nor does the head athletic trainers' group feel that it is a problem within the intercollegiate athletics setting. In contrast, the head athletics directors' group feels that HIV/AIDS-related health problems do exist nationwide within the intercollegiate athletics setting.
16. Regarding the issue of HIV-positive athletes competing in college sports programs, both groups do not feel HIV-positive athletes should be allowed to compete in contact sports within the intercollegiate athletics setting.

17. Concerning the issue of mandatory testing for HIV antibodies, both groups feel that no member of the student body (including athletes), faculty members, and campus support staff members should be required to undergo testing for HIV antibodies while they are members of the campus community.

18. It can be concluded that, regarding the issue of protecting HIV-positive status confidentiality (the right to be informed and an administrator’s responsibility to inform others), both groups feel that they have the civic and professional right (as top athletics department administrators and health care practitioners) to be immediately informed of the health status of an HIV-positive athlete or athletics staff member directly under their respective supervision. In contrast to the directors in this study, the athletic trainers do not feel that the same right to be informed extends either to faculty members on campus or to the various members of the athletics department. Both groups (directors and trainers) do feel that any parent of an HIV-positive athlete has the right to be informed of his/her offspring’s personal health status.

When the term HBV is included with HIV terminology, both groups (directors and trainers) feel it is their individual right to be informed that they are working with an HIV or HBV-infected person within the athletics setting. And after being exposed to an HIV or HBV-infected person within the athletics workplace, both groups feel that they have a right to be told the name of the HIV or HBV-infected person responsible for transmitting the infection to them within the athletics setting.

In their roles as the athletics department head administrators and head health care practitioners, the two groups do not agree that it is their respective
group's responsibility to inform parents, their individual department's athletes/staff members, their institution's faculty members, or the opposing team(s)/staff members regarding the HIV-positive status of departments' athletes within the athletics or campus settings. Only the athletics directors' group feels a responsibility to inform parents. In contrast to the directors' group, the athletic trainers do not feel it is their group's responsibility to inform their department's athletes/staff members, their institution's faculty members, or the opposing team(s)/staff members regarding the HIV-positive status of athletes participating within the athletics or campus settings.

19. It can be concluded from the findings of this study regarding research and HIV inservice education, that both groups feel a need for increased research related to HIV/AIDS issues affecting the well-being of any individual participating within the athletics setting. Additionally, both groups feel a need for enhanced HIV-related inservice education for athletics directors and administrative support staff members, athletic trainers and staff members, coaching staffs' members, and athletes within the intercollegiate athletics setting.

20. Regarding the demographics section of the survey, the results of this study indicate that the demographic profiles established for each group reveal homogeneity between head athletics directors' groups and head athletic trainers' groups within the SWC and SLC.

21. Regarding the attitude scale section of the survey, it can be concluded from the results of this study that the attitudinal profiles established for each group reveal homogeneity between head athletics directors and head athletic trainers from within the SWC and SLC concerning approximately 85% of the survey section statements. There were observed differences in attitude areas concerning HIV/AIDS-related issues dealing with protecting confidentiality, interaction among HIV-positive/HIV-negative individuals, and the perceived severity of the
HIV/AIDS public health dilemma related to disease transmission controls concerning various subpopulations within the higher education community.

22. It can be concluded from the extensive review of related literature conducted for this study that there currently exists a noticeable void of published research concerning HIV and AIDS related issues directly or indirectly affecting the intercollegiate athletics setting.

Implications of the Findings

Concerning the analysis and interpretation of data gathered from this study and the summary of the findings, the following implications based on the findings appear to be valid and justified.

**HIV’s Longevity in Higher Education**

Because the higher education community can be considered a subset of our national population, activities of athletes and department personnel who provide health care techniques and services may place them at slightly greater risk for HIV-transmitted infection when compared to non-athletic peers. Preventing exposure is important within the athletics setting. It includes measures in three general areas: (a) protecting athletes and athletic health care practitioners while providing health care services, (b) protecting various individuals within the athletics setting, and (c) maintaining a safe environment. The institution of higher education and its community of professionals and support personnel share an ethical (professional), moral (societal), and legal responsibility for providing adequate access to HIV/AIDS prevention and protection through effective educational intervention and health care services.

**Higher Education’s Accountability**

Educational intervention is still our most viable tool for significantly reducing the chances for increased HIV infections among younger and older
adults. The intercollegiate athletics sector's leaders are accountable for the development and implementation of enhanced HIV educational awareness interventions for student athletes and support staff personnel.

**Need to Increase HIV-Related Knowledge of Administrators and Athletes**

The findings of this study reveal that head athletics directors need to become more actively involved in the process of increasing their personal HIV/AIDS-related knowledge levels as head athletics department administrators responsible for the continued well-being of athletes and department personnel under their supervision.

**Increased Professional Continuing Education Activities**

Inservice or continuing education is necessary and should not be left to chance. The continuing education process goes beyond having access only to professional literature or various journals, which may not be thoroughly reviewed, to provide sufficient understanding to improve one's HIV/AIDS knowledge level required to initiate review for enhanced prevention and protection outcomes. All head athletics directors in higher education should work as a professional unit to enhance their groups' HIV/AIDS knowledge and understanding regarding issues of importance that directly and/or indirectly affect the well-being of all individuals associated with intercollegiate athletics.

**Increasing Ethnicity Representation**

Hiring the most qualified person to fill each available position within the athletics setting should be a priority. This study reflects that the groups' profiles (head directors and head trainers) are of the same ethnicity and gender (100% white; 93% males). Because student athletes may relate better to athletic department personnel who they perceive can better understand their individual ethnic backgrounds and cultures compared to sports management personnel from
different backgrounds, an effort should be made to employ more well-qualified and racially diverse males and females.

**Compliance With HIV-Related Guidelines, Recommendations, and Regulations in the Athletics Workplace**

There is a need for head athletics directors and head athletic trainers to provide access for enhanced HIV/AIDS related education interventions and health care services to everyone associated with intercollegiate athletics.

**Right to Compete Regarding HIV-infected Athletes**

Team physicians and athletic training personnel need to assume that they are at risk for accidental exposure to HIV and use appropriate precautions. Team physicians have a medical and ethical responsibility to educate athletic trainers, coaches, and athletes to practice safe HIV prevention and protection techniques to minimize the risks of exposure and transmission. Head athletics directors and head athletic trainers have a professional responsibility to make sure team physicians are successful regarding any educational intervention initiatives planned and implemented within the athletics setting.

Reasonable accommodations should be made to reduce the risk of HIV transmission through appropriate counseling; warning all athletes of the possibility of exposure to HIV infection during any contact sport (without naming the infected individual); removing bleeding athletes from competition until properly protected; and following the CDC’s universal precautions regarding the handling of blood-borne pathogens within the athletics setting. A physician (team or personal) should inform a documented HIV-positive athlete that his/her participation in a contact sport may expose others to HIV infection. If the risk of HIV transmission is believed to be medically significant, participation in the chosen sport(s) should be discouraged. Recommendations of an alternate noncontact sport may be offered.
Right to Work of HIV-Infected Athletic Health Care Practitioners

At issue is whether the HIV-infected health care practitioner has the right to practice related health care techniques within the athletics setting when there is a theoretical risk of exposing others to possible HIV infection. If HIV-infected athletes have the right to compete unless there is a valid and documented medical reason(s) to be denied continuance, it would seem rational to expect that the same set of professional and legal parameters would be applied to HIV-infected health care practitioners within the athletics setting.

Mandatory HIV Testing of Athletes and Staff

This study found that head athletics directors and head athletic trainers were opposed to mandatory testing for HIV antibodies for student athletes and/or departmental staff members within the athletics setting.

The Confidentiality Issue

This study found that head athletics directors and head athletic trainers feel they have the right to be informed about any HIV-infected athlete under their administrative responsibility, but they do not feel that anyone else should be informed within the athletics setting. Within the current framework of medical ethics, no one has the right to be informed of an individual's HIV-positive status by a physician without the consent of the infected individual. Therefore, head athletics directors, head trainers, physicians, and attorneys must work together to formulate testing policies, sports participation guidelines, and legal standards regarding HIV-positive athletes.

HIV Education Awareness and Intervention

The results of this study show that the head athletics directors and head athletic trainers had identical attitude profiles (100% respectively) regarding the need for enhanced HIV/AIDS education awareness for athletes and athletics department personnel. It is imperative that instruction be implemented concerning
techniques to minimize the risk of acquiring HIV, including support systems for student athletes coping with the personal difficulties associated with HIV infection. Effective educational intervention processes should provide participants with abilities to understand and successfully cope; one example is Longshore's (1990) seven-step model for at-risk individuals. The seven steps are as follows: (a) identify the high-risk target group, (b) identify the attitudes or behaviors placing the group's members at risk, (c) select the media methodology most likely to reach the group, (d) provide appropriate and factual information, (e) provide skills for reducing HIV-transmission risk, (f) provide motivators for reducing HIV-transmission risks, and (g) identify cognitive and behavioral outcomes appropriate for the high-risk group.

**Need for Increased Governmental Regulation**

The directors' and trainers' attitudinal profiles reveal that each group feels that there is a need for increased government regulatory control to better protect citizens from HIV transmissions within the general public and within various higher education communities.

In reality, existing government regulatory controls are ample for ensuring positive outcomes related to curtailing HIV transmissions within the athletics setting. But safeguards can be enhanced only if the teams' physicians, the athletics departments' head directors, and head athletic trainers will act responsibly in providing adequate continuing education processes. They must also be held accountable for being in full compliance with published recommendations, guidelines, and regulations concerning HIV transmission, prevention, and protection efforts affecting the athletics setting.
Recommendations for Future Research

This study's qualitative investigation describes the results of analyzed data between head athletics directors and head athletic trainers from the SWC (Division 1A) and the SLC (Division 1AA) regarding demographic, knowledge, and attitude differences concerning HIV/AIDS-related issues affecting the intercollegiate athletics setting. The following are recommendations for future research deemed beneficial for the advancement of knowledge and understanding within the intercollegiate athletics setting in higher education:

1. Further study is necessary to determine whether the same results or other differences can be found in a larger population sample concerning attitudinal profiles and knowledge levels of head athletics administrators.

2. A similar future study could include assistant athletics directors and assistant athletic trainers, thus broadening the perspective of responses throughout the top sports management ranks within the athletics setting. Student athletes could also be included in order to provide representation of the entire population subgroups associated within intercollegiate athletics in higher education.

3. It is recommended that a study be conducted with focus upon the degree of adequacy in which HIV transmission policies and student athlete health care service plans are structured and implemented within the athletics setting compared to the various professional groups published recommendations, guidelines, and regulations concerning the control of HIV transmission. Private institutions could be compared to public colleges and universities, and larger campuses could be compared to smaller institutions, within the intercollegiate athletics setting.

4. In a future investigation, college management personnel could be surveyed to see if there is a need to develop a certification process and curriculum criteria related to HIV/AIDS education for head athletics directors within the intercollegiate athletics setting.
5. A study could be conducted surveying Division 1A and/or 1AA intercollegiate athletes to profile various attitude characteristics about HIV and AIDS-related issues affecting college sports to determine the degree of risk-free personal health choices occurring among student athletes regarding preventive and protective behavioral traits in the higher education setting.

6. A study could be conducted surveying high school athletes to reveal various attitude characteristics about HIV/AIDS-related issues affecting the high school sports environment in order to profile the type of athlete entering the college setting.

7. It is recommended that high schools' and/or colleges' team physicians be surveyed to profile the degree to which student athletes are becoming HIV-positive within the athletics setting and to what measurable degree educational interventions are being planned and implemented regarding preventive and protective interventions.

The results of this study detail responses from participants faced with the responsibility to control HIV transmission within the athletics setting in higher education. The nature of the descriptive perspectives expressed should provide anyone interested in the advancement of the intercollegiate athletics setting some insight into the problems that may be encountered. The suggestions for future research are made to encourage investigation that will provide a clearer understanding of the intercollegiate athletics administrators' (directors and trainers) knowledge and attitudinal profiles necessary to effectively deal with HIV transmission control and other HIV/AIDS-related issues in higher education.
APPENDIX A

A GLOBAL REVIEW OF HIV/AIDS
A Global Review of HIV/AIDS

A Worldwide Health Crisis

The HIV and AIDS pandemic continues to expand in its second decade. In 1981, when AIDS was discovered, an estimated 100,000 people worldwide were HIV-infected. By early 1992, an estimated 12.9 million people globally had been infected with HIV (7.1 million men, 4.7 million women, and 1.1 million children). Of these totals, one-fifth (2.6 million) developed AIDS and nearly all of them (2.5 million) have died (Tarantola & Mann, 1993). By the end of 1994, over 17 million people were HIV-infected with approximately 6 million deaths caused by AIDS (WHO, 1994).

In a 1993 WHO update, the global agency reported where adult infections have occurred so far around the world: 62% in sub-Saharan Africa; 11.6% in South/Southeast Asia; 11.6% in Latin America and the Caribbean; 7.8% in North America (mostly in the United States); 3.9% in Western Europe; .6% in North Africa and the Middle East; .4% in Eastern Europe and central Asia; .2% in East Asia and the Pacific Rim Islands; and .2% in Australia. The fastest growing epidemic area is in Southeast Asia. Merson (1993) stated that the infection rate among Thai men seeking care for other STDs rose from zero in mid-1989 to 6% in mid-1992. Far worse, is the situation in Africa where 33% of adults are HIV-infected in some cities and in Southeast Asia where HIV infections have risen 800% between 1993 and 1994, from 30,000 to 250,000 confirmed cases (10th International Conference on AIDS, 1994, Yokohama, Japan).

Poverty is a key contributor to the HIV and AIDS epidemic, according to the first full-scale progress report by WHO's (1992) Global Programme on AIDS (GPA). Financial hardship leads men to (a) leave their families to search for employment, (b) promotes drug use or sale, and (c) makes prostitution a survival strategy for women and younger females. AIDS completes the vicious cycle by
making a community's citizens even poorer. WHO estimates that as of January 1992, there were between 12 and 13 million HIV infections and AIDS cases worldwide. By the end of 1994, WHO estimated approximately 6 million deaths caused from AIDS and between 18 and 20 million HIV-infected individuals. By the year 2000, 90% of all confirmed HIV/AIDS cases will be in developing countries. Although the annual incidence of HIV infection in developed countries is believed to have peaked in the mid-80s, the incidence continues to rise in Africa, Asia, and Latin America.

HIV and AIDS in Latin America

Alden (1993) reported that the daily routine of pain and suffering has become a threat of gigantic proportions as the country of Honduras endures an HIV/AIDS epidemic and one in which it is ill-equipped to effectively deal with nation-wide. HIV and AIDS victims are ostracized by their families and communities along with being shunned by the country's public health system. Honduran AIDS patients face discrimination motivated by fear. Many medical doctors who work in the Health Ministry's AIDS program are reluctant to treat HIV-positive and AIDS patients. The on-going struggle to successfully treat AIDS patients is compounded by the poor sanitary living conditions caused from the nation's crushing poverty and the many opportunistic illnesses related to the AIDS condition. An estimated 90% of the country's AIDS patients are confirmed to have tuberculosis (Alder, 1993).

Health Ministry officials reveal that since registering their first official AIDS case in 1985, they have since confirmed 3,514 people suffering from AIDS or HIV infection. Of those documented cases, 629 died by the end of 1992. HIV and AIDS testing is considered an expensive luxury in a nation of 5 million people with a 1991 per capita income of $637 (Alder, 1993). The drug AZT is available in Honduras, but most patients can not afford treatment.
In Honduras, Health Ministry testing programs reach only those who show symptoms of AIDS or have been identified as high-risk behavior related to unsafe sexual practices. For every confirmed HIV-positive person, there are an estimated 25 to 40 individuals who do not know they are HIV-positive. National efforts to fight the spread of HIV and AIDS are severely hampered by the conditions of poverty, promiscuity among men, objections from the influential Roman Catholic Church to all forms of birth control, ignorance about how HIV infections are transmitted, and a local culture that still sends many of its 14-year old boys to prostitutes for fear that they may otherwise turn out to be homosexuals.

1993, the Honduran government budgeted approximately $250,000 to fight AIDS. The government is expecting to receive an additional $800,000 in foreign aid which equals the financial support in 1992. The meager resources are directed to education and prevention programs with little funds going to those who have contracted HIV or AIDS.

**HIV and AIDS in Africa**

In African continent countries the potential to reduce the spread of HIV infection and AIDS is great, since they have in common a low incidence of HIV infection compared to a high incidence of other STDs (World Bank, 1992). To curb STD transmission as a means of reducing HIV transmission, prevention and treatment programs should target the viral transmitters, such as prostitutes and their clients. Such programs can have up to eight times the preventive impact of programs aimed at the general population (Lamboray and Elmendorf, 1992).

However, efforts would not simply concentrate on those STDs that facilitate HIV transmission, since all STDs can affect fertility and one’s healthful well-being. Furthermore, the World Bank has limited lending activities to countries where AIDS is wide-spread.
HIV and AIDS in Asia

According to statistics reported by the AIDS Society of Asia and WHO (1993), by the year 2000 an estimated 4 million to 8 million Asian children will have been orphaned by the HIV and AIDS epidemic. By the year 2000, one-third of all deaths may be contributed to AIDS-related diseases. The Asian countries' blood supply is not safe from HIV infection. In Asia and the Pacific Rim Islands, HIV and AIDS were not officially detected until the mid-80s. Now health authorities estimate that 2.5 million people are HIV-positive and expected to quadruple to 10 million cases by the year 2000. AIDS is expected to spread faster than it did in Africa where 7 million Africans are HIV-positive and/or have developed AIDS since the late 1970s. This prediction is based upon the permissiveness of men's sexual behavior which is deeply rooted in the Asian culture. Large numbers of Thai, Japanese, Malaysian, and Chinese men frequent brothels and massage parlors in Thailand, the Philippines, and India, bringing HIV infections home to their wives and family members.

Total HIV infection in India doubled in a year's time, reaching 1 million confirmed cases by the end of 1992. In northeastern provinces of India, HIV infection rates among drug users went from 1% to 50% in a 12-month period (WHO, 1993).

In addition, the drug traffic in the Golden Triangle, at the intersection of Thailand, Burma, and Laos, not only produces intravenous drug users, but is the archway of free access to cross-border travel between populations. Additional statistics of importance to educators concerning HIV prevention around the world are as follows:

(1) By the year 2000, more new HIV infections will occur each year in Asia than in the rest of the world combined.
(2) By the year 2000, close to 2 million adults in Asia and the Pacific Rim Islands will have died from the AIDS epidemic.

(3) Thailand, where an estimated 500,000 of its 56 million population are HIV-positive, is already losing more than $1.2 billion per year as a result of the Asian AIDS epidemic.

(4) In some areas of Thailand, as many as 23% of pregnant women and 10 to 15% of military draftees are HIV-positive.

(5) In Bombay, India an estimated 200,000 young girls and women work as prostitutes, 30% to 50% are HIV-positive.

(6) In Burma close to 100% of intravenous drug users are HIV-positive (WHO, 1993).

**HIV and AIDS in India**

Mangla (1993) reported that AIDS will not be a notifiable disease in the country in the interest of maintaining confidentiality for people with HIV and AIDS. India’s National AIDS Control Organization (NACO) decided that providing needles to injecting drug users gives the wrong signal about government policy regarding drug abuse. Drug abuse is a criminal offense punishable by imprisonment. In the Northeastern states of India, 54% of injecting drug users have been found to be HIV-positive. It appears that media campaigns against injecting can arouse curiosity rather than deter from injection which happened in 1991 in Nepal. After such a campaign was implemented, a rapid rise in the rate of oral to injection drug use was recorded. Only low key peer programs are seen as a likely educational intervention to be used to reduce HIV transmission. Concerns are also raised about hospitals’ policies to refuse to treat AIDS patients (Mangla, 1993).

The Ministry of Health and Family Welfare has allocated $100 million for a National AIDS Control Project in the eighth five-year (1992-1997) plan for health
in India. The sum constitutes more than 15% of the country’s health budget, placing AIDS second only to malaria. Leprosy and tuberculosis gets approximately 50% and 30%, respectively, of the AIDS budget. The bulk of the total is a loan from the World Bank. WHO is providing $1.5 million by way of technical expertise. The disquiet in India is not confined to economic concerns. The National AIDS Control Organization, formed in August 1992 to implement the control program, favors unlinked anonymous HIV testing or mandatory testing (as does WHO), but the medical community is divided on this issue. Additionally, the question of blood safety has yet to be fully resolved. Efforts to prevent contamination of blood have been made since 1989, when HIV antibodies were discovered in some indigenously produced blood products (Mangla, 1993).

**HIV and AIDS in Russia/Eastern Europe**

In Eastern Europe, countries once shielded from HIV infections and AIDS, as a result of travel restrictions and relative isolation, now face greater exposure (WHO, 1993). WHO estimates that 50,000 people in Eastern Europe and Central Asia are HIV-infected, including more than 3,000 people who have developed AIDS.

As an example of how HIV can be transmitted by various methods, an AIDS epidemic swept through hospitals in southern Russia in the late 1980s infecting 260 babies and traced to one person. This male person became HIV-infected in Africa. An exhaustive medical search by Russian health authorities revealed that only one man in the area was HIV-positive, a Russian radio engineer who had recently returned from a year-long work assignment to the Congo.

The Russian children’s HIV and AIDS epidemic began in 1981 when the HIV-positive engineer returned to Elista and married. The virus spread to his wife. She later gave birth to an HIV-infected infant. Later the child became
symptomatically ill and was sent to the area hospital in 1988. Doctors did not immediately detect the child as being HIV-positive.

The child received various drug injections. If the same drug was to be given to several children, doctors and nurses would use the same syringe after replacing the used needles. The virus spread to other hospitalized children. As they became increasingly sick, they were transferred to larger regional hospitals for specialized tests and treatment. At each of the individual regional hospitals, the virus transmission pattern was repeated, resulting in new cases being reported over 300 miles away from the original source of infection.

It was many months before Russian medical authorities realized what had transpired. There had not been a single confirmed case of HIV or AIDS in Russia prior to the new development. As soon as health authorities recognized the presence of the HIV infection in people, they began an exhaustive medical search to track the epidemic’s original source.

In 1989, more than 140,000 people were HIV-tested. The test results revealed many infected children, some infected mothers, and one infected man, the Russian engineer. Now there are approximately 260 infected children of various ages and stages of clinical AIDS (WHO, 1993).

**The Arab Nations’ Attitudes About AIDS**

Kandela (1993) discussed that the, somewhat, closed society of middle eastern countries can not stop HIV transmission. Alarm sweeps the area due to a confirmed AIDS-related death of an Iraq medical doctor raised and educated in Saudi Arabia. The death of the young doctor has triggered considerable debate within Arab medical circles despite a very non-verbal societal response to AIDS-related problems throughout the region. The Lebanese society is characteristic of hostility towards AIDS patients regardless of the cause of transmission.
Health authorities cannot say with certainty how many people are HIV-infected, but official figures are thought to be well below the full extent of HIV transmission in the region. Tunisia health data released in early 1993 stated there are 350 confirmed AIDS cases, for which, doctors are skeptical. One reason is the reporting of accurate statistics, such as the claim of only 300 active prostitutes which health authorities figure to be approximately 5,000 instead.

Jordan’s Ministry of Health ruled in 1993 that it is mandatory for all graduates of foreign medical schools, seeking government hospital appointments, to undergo pre-employment HIV-testing. However, local graduates are exempt. Similar rules are implemented in the United Arab Emirates and Saudi Arabia; including foreign medical and hotel workers, and doctors who, if found to be HIV-positive, are deported or recommended for isolation treatment if a nationalized citizen.

Despite its poor economy and large population more health education is being carried out in Egypt than any other Arab country, except Lebanon. The availability of condoms for family planning purposes is proving to be of help in the protection against HIV infection within the Arab region. A number of doctors in the region are concerned about the secrecy, within government circles, regarding the importation of HIV-infected blood and blood products. They are concerned that countries like Iraq and Lebanon may have been victims of the (1993) French blood scandal where non-screened blood was often imported from France.

HIV and AIDS: Spain’s Setback

Banos (1993) reported the Spain government’s anti-AIDS campaign aimed at preventing unplanned pregnancies and STDs has been declared illegal by a high court. The November 1990 launched campaign promoted the use of condoms targeted at young people. From the start the campaign was strongly opposed by
several Spanish groups including the Roman Catholic Church and the Catholic Confederation of School-parents (CONCAPA). The later is known for its opposition to many government initiatives on education and youth subjects. CONCAPA argued that the campaign encouraged free sexual relations among young people. The main argument was that the statement that condoms are a safeguard against unplanned pregnancies, STDs, and AIDS was not true. A key reason why the judges accepted the argument was because the campaign did not impart the message that only the complete abstinence from sexual relations and the mutual fidelity between sexual partners who are not infected eliminates completely the risk of HIV and other STD infections.

Although the Government and many support groups were surprised by the court’s ruling, the Ministries of Health and Social Affairs intend to appeal to the Tribunal Supreme Court. Several organizations, such as the Spanish Confederation of Associations of Spanish School-parents (CEAPA), totaling 8,000 groups, have expressed support for the anti-AIDS campaign. Trade unions, the Spanish Consumer’s Union, and anti-AIDS committees have said the court’s verdict is bad news for the fight to prevent HIV transmission and AIDS in Spain (Banos, 1993).

HIV Global Testing Issues

In November of 1992 the UK NGO AIDS Consortium held a conference to discuss the difficulties of HIV testing in developing countries. National and international non-government organizations (NGOs), ministries of health, technical and ethical interest groups, and the WHO Global Programme on AIDS were among the agencies represented (The Lancet, 1992 November 14).

The most straightforward of the issues discussed was the inability of developing countries to assure the quality of all blood used in transfusions. It is estimated that 30% of blood supplies in India, for example, are untested. The
price of imported test-kits, which must be paid for in foreign exchange, is an important factor. The actual cost of testing must take into account salaries, distribution, upkeep of equipment, and quality assurance. Quality control of services often breaks down due to inefficient or non-existent administrative and clerical procedures, training, and monitoring. Developing adequate techniques to match the conditions in resource-poor countries presents a major challenge to public health authorities and educators.

**HIV and AIDS: Global to National Focus**

Whether focusing on a global, national, state, or local level; and whether focusing on public health, medical science, or on higher education issues related to the AIDS epidemic, HIV is a preventable communicable disease. The primary essential element is educational intervention necessary to modify behavioral change in people of all age groups and behavioral risk groups. To provide or not provide adequate HIV transmission, prevention, and protection education has its realities regarding economic impact, nationally. The current cost to care for an AIDS victim ranges between $75,000 and $125,000 annually, with the nation’s estimated annual cost approaching $15 billion by the end of 1995. The total economic impact on the United States regarding HIV, AIDS, other STDs, treating drug and alcohol abuse, and including work lost productivity related to premature death, accidents, and crime factors, was estimated to be approaching $200 billion annually by the end of 1991 (USPHS, 1991).
APPENDIX B

SAMPLE LETTER: REVIEW-PANEL
March 15, 1993

Harold L. Whiteley
Ph.D. Candidate, UNT
531 W. Main St.
Lewisville, Tx 75057

Dear Mr. Whiteley:

I have reviewed your survey instrument and find it to be overall well thought out and presented. I did make notations in the margins of survey section 1A thru 1C which you may or may not deem significant, but were in effect the only corrections I felt might need to be made.

Good luck on your dissertation, and hopefully I will meet you some day. If you are ever on the campus of Texas College of Osteopathic Medicine in Fort Worth, please stop by.

Sincerely,

Alan R. Stockard D.O.
Division Chief
Sports Medicine/Rehabilitation

ARS/pp
APPENDIX C

COVER LETTER TO SURVEY INSTRUMENT
Dear Director/Trainer:

Thank you for promptly returning the recently forwarded (November 10, 1994) correspondence marking you are willing to be a research study participant regarding the attached/signed copy of the Survey Participation Response Sheet. Please find enclosed the following:

(1) Letter from: Pete Carlon, MS Ed, ATC
    National Director, District Six
    National Athletic Trainers' Association;

(2) Survey Directions Sheet;
(3) The 3-section Survey Instrument with Priority Postage return envelope attached;

(4) 5 - #2 Pencils; and
(5) A token of my appreciation for your willingness to be a study subject.

The enclosed Survey Instrument is the result of over 18 months of investigation in athlete healthcare services. The few minutes taken to respond to various section items will significantly contribute to a recognized void in the professional literature concerning HIV transmission prevention and awareness education within intercollegiate athletics.

I'm unable to adequately express my sincere appreciation for your willingness to cooperate as a dedicated study subject within college athletics. I can only pledge to also follow the example you're setting regarding professional cooperation whenever I'm fortunate enough to be a practicing director of athletics within the college ranks. Please schedule for the survey to be returned in 7 to 10 days and prior to December 31st. Thanks once again.

With Warm Regards,

Harold L. Whiteley, M.S.
Ph.D. Candidate/UNT
Sports Wellness Research
531 West Main Street
Lewisville, TX 75057
APPENDIX D

NATA SUPPORT LETTER
ACCOMPANYING SURVEY
March 1994

Dear Southland Conference and Southwest Conference Athletic Directors and Head Athletic Trainers:

Enclosed is a questionnaire about HIV awareness and attitudes from Harold L. Whiteley, M.S., an NATA member and a doctoral candidate at the University of North Texas. Since this is a worthwhile research topic and Mr. Whiteley must have 100% participation for his research to be valid, we recommend you participate in this venture.

While we do not endorse Mr. Whiteley's project, we do encourage your prompt response so his research project will be successful.

Thank you for your cooperation in this effort.

Sincerely,

Pete Carlon, MS Ed, ATC
Director, District Six
NATA Board of Directors
March 14, 1994

Harold L. Whiteley, M.S.
Sports Wellness Research
Athletics Administration
Ph.D. Candidate/UNT
531 West Main Street
Lewisville, TX 75057

Dear Harold:

The NATA board of directors agreed that I could draft a letter recommending that your survey participants complete and return your questionnaire about HIV awareness and attitudes. I am pleased to enclose it.

Sincerely,

Pete Carlon, MS Ed, ATC
Director
District Six
APPENDIX E

SURVEY INSTRUMENT
Survey Instrument

Assessing Attitudes and Knowledge

Among
Intercollegiate Divisions 1A/1AA
Head Athletics Directors and
Head Athletic Trainers

Concerning HIV Education, Protection and
Related Health Care Service Issues for Student
Athletes and Athletics Department Personnel

Within
The Southwest and Southland Conferences
Membership of Participating
Institutions for Higher Education
in Texas

Fall 1994
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(1993)

EDUCATIONAL RESEARCH
SURVEY INSTRUMENT DEVELOPED
FOR THE
INTERCOLLEGIATE ATHLETICS SETTING
IN HIGHER EDUCATION

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SURVEY INSTRUMENT

PURPOSE

The following survey has three main sections: (1) Demographics; (2) General/Specific Knowledge about HIV and AIDS; and (3) General Attitudes about HIV and AIDS.

Sections 1, 2, and 3 will be taken by all head athletics directors and head athletic trainers who have administrative job responsibilities for both men's and women's sports programs on respective campuses within the Southwest Conference membership.

The purpose for the survey is to collect demographic, knowledge and attitude response data from the participants pertaining to HIV and AIDS education and health care service issues within intercollegiate athletics. The data collected will be relative to attitudes, general and specific knowledge of head athletics directors and head athletic trainers concerning personal/professional management and administrative job responsibilities directly affecting student health care policy development/implementation related to the wellbeing of student athletes and athletics department personnel.

RATIONALE

This three-phased survey instrument examines a variety of related HIV transmission prevention and protection issues within the athletics setting in higher education. Survey items in sections 1, 2 and 3 cover demographics, knowledge and attitude scales related to the following topics: symptomatology, modes of transmission, associated risk behaviors, consequences, prevention and protection measures, institutional policies, athletics department policies and educational plans, as well as attitudes toward testing, confidentiality, providing support, interactions with HIV/AIDS infected persons, and comfort level with HIV/AIDS issues within the intercollegiate athletics setting (Divisions 1A/1AA) in Texas and Louisiana.
SURVEY ITEMS

Survey section items can provide information regarding the future assessment of developed criterion for education and health care objectives and recommended guidelines related to enhanced HIV transmission prevention and protection awareness processes, techniques, and services for athletes and athletics department staff members within the athletics health care setting in higher education. Survey results will not be used as a tool for comparison between individual institutions within the Southwest and Southland Conferences, but for measuring a 100 percent population sample (N = 34) representing Divisions 1A and 1AA intercollegiate athletics health care programs in higher education.
INSTRUMENT VALIDITY

AND RELIABILITY
Instrument Validity and Reliability

Representative instruments, among the various instruments reviewed and adapted for use in this study, are ones developed by Jones (1992), McConatha and Neutens (1987), and Yarber (1989) to effectively assess HIV related knowledge and attitudes. Like the other developed surveying instruments reviewed, questionnaire items were selected by Jones based on a thorough review of recent literature on the topic of HIV and AIDS, along with a questionnaire from the Centers for Disease Control, and other reliable and valid instruments. Participants were not queried about information which was determined to be of common knowledge to participants. As a representative example for establishing validity among the reviewed instruments, the questionnaire developed by Jones was sent to a panel of experts and revised based on feedback. The panel members were individuals known to be involved in HIV related field work or research. The instrument was then tested for test-retest reliability to determine stability or the consistency of repeated measures. Results were as follows: knowledge, r = .86 and attitudes, r = .80. Secondly, each question on the knowledge scale was examined to determine reliability. The McNemar Test was used to determine whether a significant proportion of subjects changed a response to an item from the pre-test to the post-test. No significant differences existed between time one and time two for the knowledge scale. Finally, a t-test was performed between time one and time two since the attitude scale had a five-point Likert-type format. No significant differences were found.

McConatha's instrument items were adapted from McConatha and Neutens (1987), the National Center for Health Statistics (Dawson, 1988), and the American School Health Association (Kerr et al., 1989). Furthermore, Yarber's (1989) instrument items were developed in association with the American Alliance for Health, Physical Education, Recreation and Dance (AAHE, 1989), the AAHE's AIDS Education Project Materials Review Panel and the Project Advisory Board. Along with the CDC (1989), these groups reviewed the document for scientific accuracy, curricular approach, and multicultural sensitivity. The Project Materials Review Panel consisted of health education advisors, public school teachers, profession preparation faculty in higher
education, and parents. The Project Advisory Board included representatives of
the American College of Preventive Medicine (ACPM); the American Home
Economics Association (AHEA); the Association of Teacher Education; the
National Association for Bilingual Education; the National Association of Biology
Teachers (NABT); the National Coalition of Hispanic Health and Human
Services Organization (NCHHHSO); the AAHE's Division of Adolescent and
School Health and the Center for Chronic Disease Prevention and Health
Promotion; and the Centers for Disease Control (CDC, 1989).

Likewise, in the development phase for the instrument used for this study, a
review panel of experts was utilized to select the most appropriate items
related to HIV, AIDS, and STD knowledge and attitude scales. The panel
members were individuals known to be involved in HIV related public health field
work, research, or sports medicine in higher education, and including athletics
administration and athletic training activities within the intercollegiate athletics
setting. This instrument is a collective and adaptive replication regarding the
investigative and published works of McConatha (1992 and 1987); Jones (1992);
Yarber (1989); the American College Health Association (Keeling, 1989); The
Association of Governing Boards for Universities and Colleges (AGB, 1990); the
American Medical Student Association (AMSA, 1989); the American Academy of
Pediatrics' Committee on Sports Medicine and Fitness (APA, 1991); and the
United States Department of Health and Human Services, (USDHHS, USPHS,
SURVEY DIRECTIONS

WRITE DIRECTLY ON THIS SURVEY. PLEASE USE THE #2 PENCILS provided. Properly record your responses and if you need to change a certain response, please erase the entire response which was in error. Please print clearly when asked to respond in written form.

CONFIDENTIALITY WILL BE ASSURED!!!! Please respond honestly and only select what you personally feel is the BEST RESPONSE for each item within each survey section.

Sections 1, 2, and 3 are to be completed by ALL head athletics directors and head athletic trainers for men's and women's sports programs within the participating university membership of the Southwest Conference.

Begin with Survey Section 1 and proceed to Section 2 and Section 3 in numerical order. Please DO NOT BREAK a Section's seal and respond to survey Sections out of numerical order. Doing so could influence your decision-making process and alter your responses to various statements. Therefore, please do not go back and change any responses after beginning another survey section.

Upon completion of survey Sections 1, 2, and 3, please place your survey instrument within the attached envelope. Seal your survey instrument inside and immediately give the sealed envelope back to your Athletics Director for proper handling and forwarding to the investigator.

Thank you for your time and effort regarding the research focus for enhanced athletics health care within the intercollegiate athletics setting in higher education. Results of the survey will be forwarded to your athletics director upon completion of the study.
SURVEY SECTION 1:

DEMOGRAPHICS
SURVEY SECTION 1:

DEMOGRAPHICS

Terms
HIV: Human Immunodeficiency Virus
AIDS: Acquired Immunodeficiency Syndrome
STD: Sexually Transmitted Disease
HBV: Hepatitis B Virus

(CIRCLE YOUR RESPONSE TO EACH ITEM BELOW)

1. College's Status:
   a. State institution     b. Private institution

2. Gender:
   a. Male                     b. Female

3. Age:
   a. 18-21                     e. 37-41
   b. 22-26                     f. 42-46
   c. 27-31                     g. 47-49
   d. 32-36                     h. 50 plus

4. My Work Status: (CIRCLE ONLY ONE)
   a. Head Athletic Director (For Men)
   b. Head Athletic Director (For Women)
   c. Head Athletic Director (For Men & Women)
   d. Head Athletic Trainer (For Men)
   e. Head Athletic Trainer (For Women)
   f. Head Athletic Trainer (For Men & Women)

5. Highest Degree Attained:
   a. BA/BS
   b. MA/MS
   c. Ed.D./Ph.D.
   d. Associate
   e. Other: ____________________________
6. Certification Status:
   a. Athletics Administration: Certified by state regulation
   b. Athletics Administration: Certified by professional group or organization
   c. Athletics Administration: Non-certified
   d. Athletic Training: State/NATA certified
   e. Athletic Training: Non-certified
   f. Other: ________________________________

7. Ethnicity:
   a. Black d. Asian or Pacific Islander
   b. White e. Hispanic or Latino
   c. Native American, or Alaskan Native f. Other: ________________

8. Marital Status:
   a. Single d. Divorced
   b. Single, living with another e. Widowed
   c. Married

9. Have you had previous continuing education regarding HIV/AIDS transmission prevention and protection education for enhanced athletics health care services for the athletics setting? CHECK EACH WHERE APPROPRIATE.
   a. _____ College coursework. If so, what?______________________
       ________________________________

   b. _____ Workshop(s). If so, how many? ______
       What agency(ies)? ____________________________
       ________________________________

   c. _____ In-Service Education Program. If so, where? _____
       ________________________________

   d. _____ Other: ________________________________________

10. What as been your primary source of information about HIV and AIDS?
    a. TV/Radio Media g. Colleague(s)
    b. Medical Science Journals/Articles h. Personal Friend(s)
    c. Newspapers i. Pamphlets/Brochures
    d. General Magazines j. College Class(es)
    e. Professional Literature k. Professional Workshops/
    f. Books Seminars
    Other: ________________________________________
11. What has been your secondary source of information about HIV and AIDS?
   a. TV/Radio Media
   b. Medical Science Journals/Articles
   c. Newspapers
   d. General Magazines
   e. Professional Literature
   f. Books
   g. Colleague(s)
   h. Personal Friend(s)
   i. Pamphlets/Brochures
   j. College Class(es)
   k. Professional Workshops/Seminars

   Other: ______________________________________

12. What is your preferred way to continually learn about HIV and AIDS within the athletics setting? WRITE YOUR LETTERED CHOICE FOR EACH (a., b., and c.) RESPONSE BELOW CHosen FROM ITEM #11 (a.) THRU (k.) ABOVE.
   a. (First Choice) ______________________________________
   b. (Second Choice) ______________________________________
   c. (Third Choice) ______________________________________

13. If you had a problem or concern about HIV infection and/or transmission within the athletics setting, which community/campus resource would you turn to first? WRITE SHORT RESPONSE.
   a. ______________________________________
   Why? ______________________________________
   b. Second Choice: ______________________________________
   Why? ______________________________________

14. Do you professionally know someone with HIV or AIDS as a direct result of your workplace experiences within the athletics setting?
   a. Yes       b. No

15. Do you personally know someone with HIV or AIDS as a result of your non-work environment?
   a. Yes       b. No

16. I work in an athletics department which has established HIV and AIDS education and health care service policies and guidelines concerning transmission prevention and protection.
   a. Yes       b. No       c. Not Sure

17. I work in an athletics department which has established adequate HIV and AIDS education/health care service policies and guidelines.
   a. Yes       b. No       c. Not Sure
18. I work in an athletics department that has an established education/health care service plan on file and accessible to athletes and department personnel upon request for review.
   a. Yes  b. No  c. Not Sure

19. I work in an athletics department that has an adequate education/health care service plan on file and accessible to athletes and department personnel upon request for review.
   a. Yes  b. No  c. Not Sure

20. I am fully aware of OSHA's HIV transmission prevention and protection regulations for the workplace directly related to the athletics setting. (Occupational Safety and Health Administration)
   a. Yes  b. No  c. Not Sure

21. I am working in an athletics department which fully complies with each OSHA HIV transmission prevention and protection guideline for the athletics workplace.
   a. Yes  b. No  c. Not Sure

22. I am fully aware of APA's Committee on Sports Medicine suggested recommendations for HIV transmission prevention and protection within the athletics setting. (American Pediatrics Association, 1991)
   a. Yes  b. No  c. Not Sure

23. I am working in an athletics department which fully complies with APA's Committee on Sports Medicine suggested recommendations for HIV transmission prevention and protection for the athletics setting.
   a. Yes  b. No  c. Not Sure

24. I am fully aware of the ACHA's recommended guidelines for HIV transmission, prevention, and protection within the athletics setting in higher education. (American College Health Association, 1989)
   a. Yes  b. No  c. Not Sure

25. I am working in an athletics department which fully complies with the ACHA's suggested recommendations for HIV transmission prevention and protection for the athletics setting in higher education.
   a. Yes  b. No  c. Not Sure

26. I am fully aware of the USDHHS's recommended HIV transmission prevention and protection guidelines for the workplace. (United States Department of Health and Human Services: CDC, 1991)
   a. Yes  b. No  c. Not Sure

27. I am working in an athletics department that fully complies with the USDHHS's recommended HIV transmission prevention and protection guidelines for the workplace within the athletics setting.
   a. Yes  b. No  c. Not Sure
28. I am fully aware of the AGB's recommended policies and guidelines for the college setting. (Association of Governing Boards of Universities and Colleges, 1990)
   a. Yes  b. No  c. Not Sure

29. I am working in an athletics department that complies with the AGB's recommended HIV transmission prevention and protection guidelines.
   a. Yes  b. No  c. Not Sure

30. Have there been any confirmed cases of HIV or AIDS within your specific athletics setting?
   a. Yes  b. No (Skip to #33)  c. Not Sure (Skip to #33)

31. If you answered "YES" to Item #30, by what recognized method(s) was HIV or AIDS transmitted from one person to the other. (Short Response Needed and Print Clearly)
   a. Method(s) of Transmission: ________________________________
   b. Not Sure

32. If you answered "YES" to Item #30, classify the type(s) of situations.
   a. athlete-to or from-athlete
   b. athlete-to or from-nonathlete (general public)
   c. athlete-to or from-athletics staff member
   d. athletics staff member-to-athletics staff member
   e. athletics staff member-to or from-nonathletics staff (general public)

33. I feel that within my athletics department, the HIV issue is compared to the HBV issue as being:
   a. more important.
   b. equally important.
   c. of less importance.
   d. of non-significance within our athletics program, currently.
   e. neither considered very important at this time.

34. Years of service as assistant athletics director/assistant trainer:
   a. 1-3 years  e. 11-12 years
   b. 4-5 years  f. 13-15 years
   c. 6-8 years  g. 15-20 years
   d. 9-10 years  h. 20 plus years

35. Years of service as head athletics director/head trainer:
   a. 1-3 years  e. 11-12 years
   b. 4-5 years  f. 13-15 years
   c. 6-8 years  g. 15-20 years
   d. 9-10 years  h. 20 plus years
36. Experience in other endeavors (business, sports medicine, etc.)

a. 1-3 years    e. 11-12 years
b. 4-5 years    f. 13-15 years
c. 6-8 years    g. 15-20 years
d. 9-10 years    h. 20 plus years

Please list those endeavors below:

1. __________________________
2. __________________________
3. __________________________

37. Are you involved in community-related service work as a professional?

A. Yes    B. No

38. If you answered "Yes" to #37, please list those activities you have been involved in within the past 3 years:

1. __________________________
2. __________________________
3. __________________________
4. __________________________

NOTE: YOU HAVE NOW CONCLUDED SECTION 1 OF THE SURVEY. IF YOU HAVE ANY COMMENTS THAT YOU WOULD LIKE TO MAKE, PLEASE PRINT YOUR RESPONSE LEGIBLY ON THE FOLLOWING PAGE UNDER THE HEADING ENTITLED: SECTION 1 COMMENTS...IF NOT;

WHEN YOU ARE READY, PLEASE BREAK SECTION 2's SEAL AND BEGIN RECORDING YOUR RESPONSES.
SECTION 1 COMMENTS:
SECTION 2A: GENERAL KNOWLEDGE SCALE

RESPOND TO ALL SECTION 2 ITEMS ACCORDING TO CURRENT INFORMATION GENERALLY ACCEPTED TO BE VALID BY THE UNITED STATES DEPARTMENT OF HEALTH AND HUMAN SERVICES' FEDERAL CENTERS FOR DISEASE CONTROL (CDC).

CIRCLE YOUR RESPONSE TO EACH OF THE FOLLOWING STATEMENTS:

1. People can be infected with HIV without knowing it.
   a. True  b. False  c. Not Sure

2. AIDS can be cured if treated in the early stages.
   a. True  b. False  c. Not Sure

3. A blood test, currently, can tell if you have AIDS.
   a. True  b. False  c. Not Sure

4. Currently, education is our only available resource tool to successfully combat HIV infection.
   a. True  b. False  c. Not Sure

5. Medical scientists are already testing FDA approved vaccines for HIV on humans.
   a. True  b. False  c. Not Sure

6. Medical scientists do not believe that an effective vaccine is in the immediate future.
   a. True  b. False  c. Not Sure

7. Currently, the drug AZT is our only cure for AIDS.
   a. True  b. False  c. Not Sure

8. We finally have developed a test that tells if you have HIV infection.
   a. True  b. False  c. Not Sure

9. Most people who are HIV-positive have no symptoms.
   a. True  b. False  c. Not Sure

10. It takes more than just education to give every individual the power to protect themselves against HIV infection and transmission.
    a. True  b. False  c. Not Sure

11. HIV is spread to people who are currently considered to be in certain "risk groups" rather than people who are considered to engage in "risky behaviors."
    a. True  b. False  c. Not Sure

12. Nobody can get AIDS from donating blood.
    a. True  b. False  c. Not Sure

13. Anybody can get HIV and AIDS.
    a. True  b. False  c. Not Sure

14. There is a 20 - 25% risk in acquiring HIV from blood transfusions, even today.
    a. True  b. False  c. Not Sure
15. If people have a negative test result, that means they have not been exposed to HIV.
   a. True  b. False  c. Not Sure

16. HIV is considered easier to contract than HBV.
   a. True  b. False  c. Not Sure

17. AIDS is considered hard to acquire.
   a. True  b. False  c. Not Sure

18. By 1990 over 80 percent of new cases of AIDS occurred in metropolitan areas outside of New York and San Francisco.
   a. True  b. False  c. Not Sure

19. Despite intensive research efforts, prevention is the only effective AIDS control strategy at present.
   a. True  b. False  c. Not Sure

20. HIV and AIDS are interchangeable medical terms which have basically the same meanings.
    a. True  b. False  c. Not Sure

21. The symptoms of AIDS-related complex are common to many diseases that are considered less serious.
    a. True  b. False  c. Not Sure

22. HIV and AIDS research is considered to be ample by public health standards for successfully combating the virus.
    a. True  b. False  c. Not Sure

23. According to the CDC, anyone infected with HIV will develop AIDS in the future and die.
    a. True  b. False  c. Not Sure

24. An HIV-positive person, showing no apparent AIDS symptoms, can not pass on the virus to others.
    a. True  b. False  c. Not Sure

25. HIV-positive individuals will develop AIDS and die unless they immediately utilize a developed and FDA approved vaccine for combating AIDS.
    a. True  b. False  c. Not Sure

26. Only people of certain minorities are infected with HIV.
    a. True  b. False  c. Not Sure

27. Approximately 75 percent of all the states in the United States have confirmed HIV and AIDS cases.
    a. True  b. False  c. Not Sure

28. Statistically, adolescents and young adults are not adequately avoiding HIV infection.
    a. True  b. False  c. Not Sure

29. Statistics, regarding behavioral change, currently show that young adults are adequately being educated concerning how to avoid HIV infections.
    a. True  b. False  c. Not Sure
30. When considering the seriousness of HIV infections, there still remains fewer than three dozen countries with confirmed AIDS cases world-wide.
   a. True  b. False  c. Not Sure

STD SECTION

31. A person under the age of 18 must get parental permission to get STD treatment.
   a. True  b. False  c. Not Sure

32. A person can usually locate STD/VD treatment by looking under “Venereal Disease” in the telephone directory.
   a. True  b. False  c. Not Sure

33. Controlling the spread of STD is largely the responsibility of public health service groups.
   a. True  b. False  c. Not Sure

34. STD case specialists are not required by law to tell a person they contact, who gave them his or her name.
   a. True  b. False  c. Not Sure

35. A person is limited in what he or she can do to personally prevent getting HIV infected.
   a. True  b. False  c. Not Sure

36. Syphilis and gonorrhea are the most common STDs in the United States, currently.
   a. True  b. False  c. Not Sure

37. Every STD is medically curable today when contracted by an individual.
   a. True  b. False  c. Not Sure

38. Nearly one-half of STD patients are under the age of 25 years.
   a. True  b. False  c. Not Sure

39. There has been a vaccine developed for HBV. Now, both HIV and HBV have effective vaccines to combat illnesses related to these two serious infections.
   a. True  b. False  c. Not Sure

40. Like HIV, HBV is transmitted in almost exact methods.
   a. True  b. False  c. Not Sure
SECTION 2A COMMENTS:
## SECTION 2B: HIV AND AIDS

### RISKS

**Scale:**

<table>
<thead>
<tr>
<th>Definitely Safe</th>
<th>Probably Safe</th>
<th>Not Sure</th>
<th>Probably Risky</th>
<th>Definitely Risky</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

CIRCLE ONE RESPONSE FOR EACH ACTIVITY LISTED BELOW:

1. Touching, hugging:
   - 5
   - 4
   - 3
   - 2
   - 1

2. Mosquito bites:
   - 5
   - 4
   - 3
   - 2
   - 1

3. French kissing (wet):
   - 5
   - 4
   - 3
   - 2
   - 1

4. Cough or sneeze (projected mist):
   - 5
   - 4
   - 3
   - 2
   - 1

5. Oral-genital sex:
   - 5
   - 4
   - 3
   - 2
   - 1

6. Sharing injection needles:
   - 5
   - 4
   - 3
   - 2
   - 1

7. Social kissing (dry):
   - 5
   - 4
   - 3
   - 2
   - 1

8. Anal intercourse:
   - 5
   - 4
   - 3
   - 2
   - 1
## HIV AND AIDS

### RISKS

Scale:

<table>
<thead>
<tr>
<th>Definitely Safe</th>
<th>Probably Safe</th>
<th>Not Sure</th>
<th>Probably Risky</th>
<th>Definitely Risky</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

CIRCLE ONE RESPONSE FOR EACH ACTIVITY LISTED BELOW:

9. Swimming pools:
   - 5
   - 4
   - 3
   - 2
   - 1

10. Tatooing:
    - 5
    - 4
    - 3
    - 2
    - 1

11. Vaginal intercourse (unprotected):
    - 5
    - 4
    - 3
    - 2
    - 1

12. Sharing razors (non-electric):
    - 5
    - 4
    - 3
    - 2
    - 1

13. Sharing toothbrushes (from a non-bleeding mouth):
    - 5
    - 4
    - 3
    - 2
    - 1

14. Mutual masturbation (unprotected):
    - 5
    - 4
    - 3
    - 2
    - 1

15. Mouth-to-Mouth Resuscitation (non-bloody mouth cavity):
    - 5
    - 4
    - 3
    - 2
    - 1

16. Mouth-to-Mouth Resuscitation (bloody mouth cavity):

17. Abstinence (no sex):
    - 5
    - 4
    - 3
    - 2
    - 1
### HIV AND AIDS

#### RISKS

Scale:

<table>
<thead>
<tr>
<th>Definitely Safe</th>
<th>Probably Safe</th>
<th>Not Sure</th>
<th>Probably Risky</th>
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<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Circle one response for each activity listed below:

18. Donating blood:
   - 5 4 3 2 1

19. Infected mother giving birth (mother to baby):
   - 5 4 3 2 1

20. Sharing drinking/eating utensils:
   - 5 4 3 2 1

21. Sharing gym's workout equipment (weight training):
   - 5 4 3 2 1

22. Sharing workout clothing (shorts, T-shirts, towels, etc. considered blood-free):
   - 5 4 3 2 1

23. Sharing workout clothing (shorts, T-shirts, towels, etc. containing blood):
   - 5 4 3 2 1
RISK SECTION COMMENTS:
SECTION 2C: SPECIFIC KNOWLEDGE SCALE

RESPOND TO ALL SECTION 2 ITEMS ACCORDING TO CURRENT INFORMATION GENERALLY ACCEPTED TO BE VALID BY THE UNITED STATES DEPARTMENT OF HEALTH AND HUMAN SERVICES' FEDERAL CENTERS FOR DISEASE CONTROL (CDC).

CIRCLE YOUR RESPONSE TO EACH OF THE FOLLOWING STATEMENTS:

1. The HIV epidemic is considered the ultimate health crisis of the 1990s.
   a. True   b. False   c. Not Sure

2. A positive HIV antibody test indicates a person has AIDS.
   a. True   b. False   c. Not Sure

3. The symptoms of people with AIDS are usually the same.
   a. True   b. False   c. Not Sure

4. AZT is the only drug currently licensed by the FDA in the United States to combat AIDS.
   a. True   b. False   c. Not Sure

5. According to Texas law, physicians are required to report all confirmed AIDS cases to state health authorities.
   a. True   b. False   c. Not Sure

6. According to Texas law, physicians are required to report all confirmed HIV cases to state health authorities.
   a. True   b. False   c. Not Sure

7. Blood banks are collecting and safely storing non-HIV infected blood.
   a. True   b. False   d. Not Sure

8. All United States military personnel must be tested for AIDS.
   a. True   b. False   c. Not Sure

9. HIV/AIDS screening of students seeking entrance to educational institutions is strongly recommended by professional education associations and public health organizations.
   a. True   b. False   c. Not Sure

10. The risk of HIV infection resulting from a single exposure to blood from an adolescent or young adult is considered medium, on a high-medium-low comparison scale.
    a. True   b. False   c. Not Sure

11. Parents of students have no "right" to information regarding the HIV status of their child or other students over 13 years of age in Texas.
    a. True   b. False   c. Not Sure

12. HIV infected students pose only minimal risk to faculty, students, and athletics health care providers (coaching/training staffs).
    a. True   b. False   c. Not Sure
13. HIV is caused by infection derived from  
   a. a virus.  
   b. bacteria.  
   c. a fungus.  
   d. protozoans  
   e. only (a.) and (b.) above  
   f. all the above choices

14. AIDS can be associated with various clinical conditions derived from  
   a. a virus.  
   b. bacteria.  
   c. a fungus.  
   d. protozoans.  
   e. all the above choices  
   f. only (a.) and (b.) above

15. The known range regarding the incubation period for HIV is  
   a. 1 to 3 months, always.  
   b. 3 to 6 months, usually.  
   c. 1 to 2 years.  
   d. 1 to 3 years.  
   e. 3 month to 10 years, depending.  

16. ________ is recognized as the single most important source of HIV and HBV infections.  
   a. IV drug use  
   b. Homosexuality  
   c. Blood  
   d. Personal carelessness  
   e. None of the choices

17. Studies of HIV's survival traits show that HIV was still detectable, in normal cell-associated experiments, for ________  
   a. up to one hour.  
   b. up to 24 hours.  
   c. up to 3 days at 98.6 (F).  
   d. up to 5 days at room temperature.  
   e. None of the choices are correct

18. The estimate of confirmed HIV infected people in the United States totals between  
   a. 1.0 and 1.5 million cases.  
   b. 1.5 and 2.5 million cases.  
   c. 2.0 and 3.5 million cases.  
   d. 3.5 and 5.0 million cases.  
   e. None of the choices are correct

19. By the end of 1992, the Public Health Service projected that the cumulative total of persons with diagnosed AIDS in the United States was approximately  
   a. 289,000.  
   b. 489,000.  
   c. 889,000.  
   d. 789,000.  
   e. between 900,000 and 950,000.

20. The number of new AIDS cases from these specific minority groups are second to AIDS cases for Whites.  
   a. Black/Hispanics  
   b. Hispanics/Asians  
   c. Blacks/Asians  
   d. Blacks/Native Americans  
   e. Hispanics/Pacific islanders

21. Prior to 1989, HIV infections were mainly transmitted by  
   a. heterosexual contact.  
   b. homosexual contact.  
   c. homosexual/bisexual contact.  
   d. IV drug use.  

22. A 22-state CDC study (1993) shows HIV infections declining among  
   a. gay men.  
   b. Blacks and women.  
   c. women and teens.  
   d. Blacks and teens.  
   e. women and heterosexuals.  
   f. heterosexuals and teens.
23. A 22-state CDC study (1993) shows HIV infections are rising sharply among
   a. gay men and blacks.  
   b. Blacks and women  
   c. Blacks, women, and teens.  
   d. Blacks and teens.  
   e. women and gay men.  
   f. teens and gay men.

24. The updated Surgeon General's Report for 1993 states new AIDS cases due to
    transmission has increased over 100 percent for males and females from 1989 through 1992.
   a. heterosexual contact  
   b. homosexual contact  
   c. two: (blood and body fluids), as  
   d. homsexual/bisexual contact  
   e. IV-drug  

25. There (is/are) ______ primary method(s) HIV can be transmitted.
   a. one source: (blood), as a  
   b. one source: (body fluids), as a  
   c. two: (blood and body fluids), as  
   d. three: (blood, body fluids, and mother/baby), as  
   e. only (c.)  

26. According to CDC statistics regarding the sensitivity of screening tests, detecting HIV
    infection in the body, ______ percent of HIV infected people with antibodies can be detected after the incubation period.
   a. only 51  
   b. approximately 75  
   c. under 85  
   d. 99+  
   e. None of the choices are correct

27. Specific symptoms of HIV infection may include
   a. tiredness and night sweats.  
   b. swollen lymph glands, weight loss, and fever.  
   c. chronic diarrhea, loss of weight, and loss of appetite.  
   d. (a.), and (b.) only  
   e. all of the above

28. There are over ______ dangerous STD infections occurring among our youth today, for which, HIV is one.
   a. 6  
   b. 10  
   c. 12  
   d. 15  
   e. 20  
   f. None of the choices are correct

29. STDs infect ______ million adolescents annually in the United States.
   a. 1.5  
   b. 2.0  
   c. 2.5  
   d. 3.0  
   e. 3.5  
   f. None of the choices are correct

30. The rate of heterosexual HIV transmission among youth has increased ______ percent in the United States since September 1989.
   a. 14  
   b. 24  
   c. 34  
   d. 44  
   e. 54  
   f. None of the choices are correct
31. A recent Harvard study (1992) revealed that by the year 2000 approximately ______ million people will be HIV infected world-wide.
   a. 33   d. 93
   b. 53   e. 113
   c. 73   f. 133

32. ________ is one of two industrial countries without a formal national public health and education plan for dealing with the HIV epidemic.
   a. England   d. Holland
   b. France    e. Germany
   c. The United States   f. None of the choices are correct

33. The majority of confirmed cases of AIDS are people between the ages of
   a. 18 and 30.   b. 25 and 35.   c. 30 and 40.   d. 25 and 45.

34. Regarding athletic competition world-wide, ________ been confirmed through published sports medicine/medical science literature of HIV transmission from one athlete to another athlete.
   a. one case has   d. less than one-half dozen cases have
   b. no cases have   e. more than one-half dozen cases have

35. Individuals who are HIV infected might experience symptoms along an HIV-related disease continuum of __________ associated clinical conditions or co-factors.
   a. < 6   d. 20
   b. from 6 to 14   e. over 25
   c. 15   f. None of the choices are correct

36. ________ explains why some individuals infected with HIV succumb to AIDS, or AIDS-related complex, while others remain symptom-free or asymptomatic for an undetermined period of time, prior to acquiring additional clinical conditions.
   a. Extreme fatigue conditions and chronic tiredness
   b. Co-factors
   c. Living conditions
   d. Ability to pay for new medical treatments and anti-AIDS drugs
   e. Reluctance to seek medical attention

37. The degree of a body's susceptibility to HIV infection may be related directly to
   a. co-factors or clinical conditions.
   b. a genetically pre-determined heredity response.
   c. the body's ability to restore white blood cells as needed.
   d. all of the above choices
   e. none of the above choices

38. The two most common diseases that men and women with AIDS get are
   a. pneumocystis pneumonia and lymphoma of the brain.
   b. Kaposi's sarcoma and neurologic disorders.
   c. pneumocystis pneumonia and Kaposi's sarcoma.
   d. chronic diarrhea and pulmonary tuberculosis.
   e. invasive cervical cancer and low number of immune cells.
39. Current HIV blood test(s) available today, tests for
   a. AIDS         d. (a.), (b.), and (c.)
   b. the virus     e. (a.) and (b.) only
   c. antibodies    f. None of the choices are correct

40. How long does it normally take for HIV-related blood test(s) to show any positive or
    negative results?
   a. 1 to 3 days   d. 3 to 6 months
   b. 1 to 3 weeks  e. over 12 months
   c. 6 weeks to 3 months f. a test may never detect HIV antibodies

STOP!!! YOU HAVE NOW COMPLETED ALL OF SECTION 2 OF THIS SURVEY.
PLEASE LOOK OVER YOUR RESPONSES TO BE SURE THAT YOU HAVE CLEARLY RESPONDED TO EACH ITEM. IF YOU WISH TO MAKE COMMENTS CONCERNING THIS PARTICULAR SURVEY SECTION, PLEASE DO SO ON THE FOLLOWING PAGE ENTITLED: SECTION 2C COMMENTS...IF NOT,

Thank you for your effort in Section 2 of this survey. Take a short break, if needed, prior to beginning Section 3.

Section 3 of this research survey will deal with your attitudes about HIV and AIDS within the athletics setting.

If you are ready, break the seal on Section 3 and begin responding...
SECTION 2C COMMENTS:
SECTION 3: ATTITUDE SCALE
SECTION 3 REQUEST:

PLEASE RESPOND TO THE FOLLOWING STATEMENTS REGARDING YOUR OWN PERSONAL BELIEFS, AND NOT ACCORDING TO ANY ITEMS THAT MAYBE KNOWN TO BE AFFECTED BY LEGAL, INSTITUTIONAL OR DEPARTMENT MANDATES.
SECTION 3: ATTITUDE SCALE

The following statements are to be assessed by giving one of five lettered responses that BEST describes your attitude concerning each statement.

KEY:  
A. STRONGLY AGREE with the statement  
B. AGREE with the statement  
C. Undecided about the statement  
D. DISAGREE with the statement  
E. STRONGLY DISAGREE with the statement  

1. Athletes should be taught about HIV/AIDS within the college setting.
2. Athletes should be taught about HIV/AIDS within the athletics health care setting.
3. I feel that people who have acquired HIV and/or AIDS got what they deserve.
4. I feel that I do have the right to delay treatment of someone I know or suspect is HIV-positive.
5. I feel that HIV/AIDS is not a health problem at this university.
6. I feel that HIV/AIDS is not a health problem within my institution's athletics setting.
7. I feel that HIV/AIDS is not a health problem within my community-wide area.
8. I feel that HIV/AIDS is not a national health problem within higher education.
9. I feel that HIV/AIDS is not a national health problem within intercollegiate athletics.
10. I feel that I have the right to refuse to work with someone who is HIV-positive.
11. I feel that HIV/AIDS will become a serious health issue at this university in the future.
12. I feel that HIV/AIDS will become a serious health issue within this university's athletics department in the future.
13. I feel that HIV/AIDS will become a serious health issue within this community-wide area in the future.
14. Currently, I feel that HIV and AIDS are national and global health issues, but locally, they do not directly impact the intercollegiate athletics health care services, my athletics department's athletes and staff members, or the university's living environment for students and campus personnel.
15. I feel that I have the right to be told if an individual is HIV-positive, for which I have administrative responsibilities, or I am treating.
KEY: A. STRONGLY AGREE with the Statement
B. AGREE with the Statement
C. Undecided about the Statement
D. DISAGREE with the Statement
E. STRONGLY DISAGREE with the Statement

16. I feel that I have the right to be told if an individual has AIDS, for which I have administrative responsibilities, or I am treating.

17. I feel that my athletics department is fully complying with various guidelines, recommendations, and regulations of the ACHA, AGB, APA, USDHHS, &/or OSHA. (American College Health Association, American Governing Boards for Universities and Colleges, American Pediatrics Association Committee on Sports Medicine, United States Department of Health and Human Services, Occupational Safety and Health Administration)

18. I feel that my university is fully complying with various guidelines, recommendations, and regulations of the ACHA, AGB, APA, USDHHS, and/or OSHA.

19. I feel that HIV/AIDS will not become a health problem within my athletics setting.

20. I do not feel personally threatened about the risk of getting HIV infection in my personal life's environment.

21. I do not feel personally threatened about the risk of getting HIV infection in my professional environment within the athletics setting.

22. More research is needed within intercollegiate athletics regarding HIV and AIDS prevention and protection health care services and techniques for athletes.

23. Enough is being accomplished within intercollegiate athletics regarding the enhancement of health care services for athletes directly concerning the control of HIV transmission prevention and protection issues.

24. I would personally be willing to attend to an injured athlete (who is bleeding) without using any recommended prevention and protection techniques.

25. I believe individuals have a moral obligation to inform their sexual partner(s) if they are infected with HIV.

26. I feel that all recommended guidelines regarding HIV transmission prevention and protection services, techniques, and education awareness processes should be strictly established and followed by all athletics department personnel and athletes within the athletics setting.
KEY:  A. STRONGLY AGREE with the Statement  
B. AGREE with the Statement  
C. Undecided about the Statement  
D. DISAGREE with the Statement  
E. STRONGLY DISAGREE with the Statement

27. I believe athletics administrators and athletic trainers have a:

   ____ (a) [moral].
   ____ (b) [ethical].
   ____ (c) [legal].
   ____ (d) [professional]

    obligation to insure that everything is being done to fully protect athletes and department staff members from HIV transmission and infection within the athletics setting.

   ____ 28. I would personally feel uncomfortable discussing HIV/AIDS/STD transmission prevention and protection awareness objectives and services directly with athletes and department staff members.

   ____ 29. I would personally prefer that HIV/AIDS/STD transmission prevention and protection awareness objectives, services, and techniques directly be discussed with athletes and department staff members outside of the athletics setting.

   ____ 30. Once an athlete or staff member becomes HIV-positive, I feel the athletics director and athletic trainer must have this information made available to them immediately.

   ____ 31. An HIV-positive athlete should be encouraged to participate in a non-contact sport of his/her choosing.

   ____ 32. Once an athlete or staff member becomes HIV-positive, it is the right of all athletes and athletics department staff members to be informed of the situation for their own wellbeing.

   ____ 33. Once an athlete becomes HIV-positive, it is the right of the opposing team members and staff to be made aware of the situation for their own protection and wellbeing.

   ____ 34. An HIV-positive athlete should not be allowed to participate in contact sports, allowing the chance for viral transmission and infection to spread to others.

   ____ 35. Athletes who become HIV-positive should be allowed to attend regular classes.

   ____ 36. Athletes who become HIV-positive should be allowed to attend classes, but kept in a separate class for HIV-positive students.
KEY:  A. STRONGLY AGREE with the Statement  
      B. AGREE with the Statement  
      C. Undecided about the Statement  
      D. DISAGREE with the Statement  
      E. STRONGLY DISAGREE with the Statement

37. Students on campus with active AIDS should be segregated from certain classroom and campus activities.

38. If it were left up to me I would allow an athlete with AIDS to remain within the athletics setting.

39. If I had a student athlete with AIDS in the athletics setting, I would not treat him/her any differently from other athletes within the athletics setting.

40. If it were left up to me I would allow an athletics staff member with AIDS to remain within the athletics setting.

41. If I had a staff member with AIDS in the athletics setting, I would not treat him/her any differently from other department staff members.

42. Athletics department administrators should be told if a student with AIDS is attending university functions, athletic events, or classes.

43. A faculty member should be informed if a student with AIDS is attending his/her class.

44. Parents should be informed if their student becomes HIV infected or develops AIDS.

45. It would be my responsibility to alert parents to the fact that a particular student athlete has become HIV-positive or has developed active AIDS.

46. It would be my responsibility to alert student athletes and staff members to the fact that a particular individual within the athletics setting has become HIV-positive or has developed active AIDS.

47. All students should be tested for HIV.

48. All athletes should be tested for HIV.

49. Athletics department staff members should be tested for HIV.

50. College personnel and support staff members should be tested for HIV.

51. Athletics staff personnel should not be allowed to continue with their current job functions, duties, and responsibilities after becoming HIV-positive.

52. Athletics staff personnel should not be allowed to continue with their current job functions, duties, and responsibilities after acquiring AIDS.
KEY:  
A. STRONGLY AGREE with the Statement  
B. AGREE with the Statement  
C. Undecided about the Statement  
D. DISAGREE with the Statement  
E. STRONGLY DISAGREE with the Statement  

53. Specifically, anyone providing student health care services and techniques within the athletics setting should not be allowed to continue their job functions and duties after becoming HIV-positive.

54. Specifically, anyone providing student health care services and techniques within the athletics setting should not be allowed to continue their job functions and duties after acquiring AIDS.

55. I feel that AIDS is largely a homosexual-IV drug-minority focused health issue and it has no place for debate within the intercollegiate athletics setting.

56. If I contracted HIV, I would leave my present duties within my chosen profession.

57. If I have AIDS, I would leave my present duties within my chosen profession.

58. Athletics directors and their support staff members should have special in-service training concerning HIV and AIDS.

59. Athletic trainers and their support staff members should have special in-service training concerning HIV and AIDS.

60. Athletics coaches and their support staff members should have special in-service training concerning HIV and AIDS.

61. Athletes within the intercollegiate athletics setting should have special in-service training concerning HIV and AIDS.

62. HIV and AIDS should be a major concern to the higher education community.

63. HIV and AIDS should be a major concern to the intercollegiate athletics community.

64. Every institution has the institutional responsibility to develop effective policies, guidelines, services, and proactive educational awareness plans to combat HIV and AIDS within the college setting.

65. Every institution has the ethical responsibility to develop effective policies, guidelines, services, and proactive educational awareness plans to combat HIV and AIDS within the college setting.

66. Every institution has the moral responsibility to develop effective policies, guidelines, services, and proactive educational awareness plans to combat HIV and AIDS within the college setting.
KEY:  A. STRONGLY AGREE with the Statement  
    B. AGREE with the Statement  
    C. Undecided about the Statement  
    D. DISAGREE with the Statement  
    E. STRONGLY DISAGREE with the Statement  

67. Every institution has the legal responsibility to develop effective policies, guidelines, services, and proactive educational awareness plans to combat HIV and AIDS within the college setting.

68. Every intercollegiate athletics department has the departmental responsibility to develop effective policies, guidelines, services, and educational awareness plans to combat HIV and AIDS within the athletics setting.

69. Every intercollegiate athletics department has the ethical responsibility to develop effective policies, guidelines, services, and educational awareness plans to combat HIV and AIDS within the athletics setting.

70. Every intercollegiate athletics department has the moral responsibility to develop effective policies, guidelines, services, and educational awareness plans to combat HIV and AIDS within the athletics setting.

71. Every intercollegiate athletics department has the legal responsibility to develop effective policies, guidelines, services, and educational awareness plans to combat HIV and AIDS within the athletics setting.

72. The Federal and state governments have a duty to protect workers and students from HIV and AIDS epidemics within the college setting.

73. The Federal and state governments have a duty to protect workers and students from HIV and AIDS epidemics within the intercollegiate athletics setting.

74. I personally feel that the HIV/AIDS issue is a preventable dilemma within the college setting.

75. I personally feel that the HIV/AIDS issue is a preventable dilemma within the intercollegiate athletics health care setting.

76. I feel the HIV/AIDS/STD issue is blown out of proportion in the news media and published literature with regards to the college setting.

77. I personally feel that HIV and AIDS is a punishment for personal health choice activities.

78. I feel the health issue regarding HBV transmission is more critical than the current HIV dilemma within the athletics setting.

79. I feel the health issue regarding HIV transmission is more critical than the current HBV dilemma within the athletics setting.
KEY:  
A. STRONGLY AGREE with the Statement  
B. AGREE with the Statement  
C. Undecided about the Statement  
D. DISAGREE with the Statement  
E. STRONGLY DISAGREE with the Statement

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<tbody>
<tr>
<td>80.</td>
<td>I feel the health issue regarding HIV and HBV transmission is equally critical within the athletics health care setting.</td>
</tr>
<tr>
<td>81.</td>
<td>If it were left up to me I would allow an athlete with HIV to remain within the athletics setting.</td>
</tr>
<tr>
<td>82.</td>
<td>If I had a student athlete with HIV in the athletics setting, I would not treat him/her any different from other athletes within the athletics setting.</td>
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<tr>
<td>83.</td>
<td>If it were left up to me I would allow an athletics staff member with HIV to remain within the athletics setting.</td>
</tr>
<tr>
<td>84.</td>
<td>If I had a staff member with HIV in the athletics setting, I would not treat him/her any differently from other department staff members.</td>
</tr>
<tr>
<td>85.</td>
<td>Athletics department administrators should be told if a student with HIV is attending university functions, athletic events, or classes.</td>
</tr>
<tr>
<td>86.</td>
<td>A faculty member should be informed if a student with HIV is attending his/her class.</td>
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HBV SECTION:

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<table>
<thead>
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<tbody>
<tr>
<td>87.</td>
<td>All students should be tested for HBV.</td>
</tr>
<tr>
<td>88.</td>
<td>All athletes should be tested for HBV.</td>
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<tr>
<td>89.</td>
<td>Athletics department staff members should be tested for HBV.</td>
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<tr>
<td>90.</td>
<td>College personnel and support staff members should be tested for HBV.</td>
</tr>
<tr>
<td>91.</td>
<td>I do not feel personally threatened about the risk of getting HBV infection in my personal life's environment.</td>
</tr>
<tr>
<td>92.</td>
<td>I do not feel personally threatened about the risk of getting HBV infection in my professional environment within the athletics setting.</td>
</tr>
<tr>
<td>93.</td>
<td>I am concerned about athletes and athletics staff members becoming HIV or HBV infected within the athletics setting at this university.</td>
</tr>
<tr>
<td>94.</td>
<td>I feel I have the right to be told, if I'm working with an HIV/HBV infected person.</td>
</tr>
</tbody>
</table>
KEY:  A. STRONGLY AGREE with the Statement  
B. AGREE with the Statement  
C. Undecided about the Statement  
D. DISAGREE with the Statement  
E. STRONGLY DISAGREE with the Statement  

___  95. If I suffer exposure and personally become HIV or HBV infected, I feel that I have a right to be informed concerning who the person is who is HIV or HBV-positive.

___  96. I feel that I do have the right to delay treatment of someone I know or suspect is HBV-positive.

___  97. I feel that I have the right to refuse to work with someone who is HBV-positive.

___  98. I feel that I have the right to be told if an individual is HBV-positive, for which I have administrative responsibilities, or I am treating.

STOP! YOU HAVE NOW CONCLUDED SECTION 3 OF THIS SURVEY IN COLLEGE ATHLETICS. PLEASE BE SURE THAT YOU HAVE RESPONDED TO ALL STATEMENTS IN THIS SURVEY SECTION.

YOUR PROFESSIONAL AND DEDICATED EFFORTS ARE TO BE COMMENDED BY YOUR SOUTHWEST CONFERENCE AND HIGHER EDUCATION PEERS WITHIN THE INTERCOLLEGIATE ATHLETICS SETTING.

THANK YOU VERY MUCH FOR YOUR EFFORTS TO FINALIZE THREE SEPARATE SURVEY SECTIONS DEVELOPED FOR THIS RESEARCH STUDY IN ATHLETICS HEALTH CARE SERVICES DIRECTLY RELATED TO HIV TRANSMISSION PREVENTION AND PROTECTION EDUCATION.

TAKE YOUR SURVEY AND PLACE IT INTO THE ACCOMPANYING ENVELOPE AND SEAL THE ENVELOPE PRIOR TO GIVING IT BACK TO YOUR ATHLETICS DIRECTOR FOR PROPER HANDLING.
SECTION 3 COMMENTS:
GENERAL COMMENTS:
GENERAL COMMENTS:
EDUCATIONAL RESEARCH
SURVEY INSTRUMENT DEVELOPED
FOR THE
INTERCOLLEGIATE ATHLETICS SETTING
IN HIGHER EDUCATION

HAROLD L. WHITELEY
PH.D. CANDIDATE
HIGHER EDUCATION ADMINISTRATION
(SPORTS WELLNESS RESEARCH)
UNIVERSITY OF NORTH TEXAS
531 WEST MAIN STREET
LEWISVILLE, TEXAS 75057
SECTION 2A: GENERAL KNOWLEDGE SCALE

ANSWER KEY

1. TRUE
2. FALSE
3. FALSE
4. TRUE
5. FALSE
6. TRUE
7. FALSE
8. FALSE
9. TRUE
10. FALSE
11. FALSE
12. TRUE
13. TRUE
14. FALSE
15. FALSE
16. FALSE
17. TRUE
18. TRUE
19. TRUE
20. FALSE
21. TRUE
22. FALSE
23. TRUE
24. FALSE
25. FALSE
26. FALSE
27. FALSE
28. TRUE
29. FALSE
30. FALSE

STD SECTION:
31. FALSE
32. FALSE
33. FALSE
34. TRUE
35. FALSE
36. FALSE
37. FALSE
38. TRUE
39. FALSE
40. FALSE
SECTION 2B:

HIV AND AIDS

RISKS

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<tr>
<th>Activity</th>
<th>Definitely Safe</th>
<th>Probably Safe</th>
<th>Not Sure</th>
<th>Probably Risky</th>
<th>Definitely Risky</th>
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<tr>
<td>For EACH Activity:</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
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<tr>
<td>1. Touching, hugging...</td>
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<td>2. Mosquito bites...</td>
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<td>3. French kissing (wet)...</td>
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<td>X</td>
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<td>4. Cough or sneeze...</td>
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<td>5. Oral-gential sex...</td>
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<td>6. Sharing drug needles...</td>
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<td>7. Social kissing (dry)...</td>
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<td>8. Anal intercourse...</td>
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<td>9. Swimming pools...</td>
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<td>10. Tatooing...</td>
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<td>11. Vaginal intercourse (unprotected)...</td>
<td></td>
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<td>X</td>
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<tr>
<td>12. Sharing razors (non-electric)...</td>
<td></td>
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<td>X</td>
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<tr>
<td>13. Sharing toothbrushes... (from a non-bleeding mouth)</td>
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<tr>
<td>14. Mutual Masturbation... (unprotected)</td>
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<td>X</td>
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<tr>
<td>15. Mouth-to-Mouth Resuscitation (non-bloody mouth cavity)...</td>
<td></td>
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### HIV AND AIDS

#### RISKS

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<th>Not Sure</th>
<th>Probably Risky</th>
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<tr>
<td>16. Mouth-to-Mouth Resuscitation (bloody mouth cavity)...</td>
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<td>X</td>
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<tr>
<td>17. Abstinence (no sex)...</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>18. Donating blood...</td>
<td>X</td>
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<tr>
<td>19. Infected mother having a baby...</td>
<td>X</td>
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<tr>
<td>20. Sharing drinking/eating utensiles...</td>
<td>X</td>
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<tr>
<td>21. Sharing gym's workout equipment...</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Sharing workout clothing (shorts, T-shirts, towels considered blood-free)...</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. Sharing workout clothing (shorts, T-shirts, towels containing blood)...</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION 2C: SPECIFIC KNOWLEDGE SCALE

ANSWER KEY

1. (a.) True
2. (b.) False
3. (b.) False
4. (b.) False
5. (b.) False
6. (a.) True
7. (a.) True
8. (a.) True
9. (b.) False
10. (b.) False
11. (a.) True
12. (a.) True
13. (a.) a virus
14. (e.) all the above choices
15. (e.) 3 months to 10 years, depending
16. (c.) Blood
17. (b.) up to 24 hours
18. (a.) 1.0 and 1.5 million cases
19. (b.) 289,000
20. (a.) Black/Hispanics
21. (c.) homosexual/bisexual contact.
22. (a.) gay men
23. (c.) Blacks, women, and teens.
24. (a.) heterosexual contact
25. (d.) three: sexual contact (exchange of body fluids); blood exposures; & mother to child
26. (d.) 99
27. (e.) all the above choices
28. (e.) 20
29. (d.) 3.0
30. (d.) 44
31. (f.) 133
32. (c.) The United States
33. (d.) 25 and 45
34. (a.) one case has
35. (e.) over 25
36. (b.) Co-factors
37. (b.) a genetically pre-determined heredity response
38. (c.) pneumocystis pneumonia and Kaposi's sarcoma
39. (c.) antibodies
40. (c.) six weeks to 3 months
EDUCATIONAL RESEARCH
SURVEY INSTRUMENT DEVELOPED
FOR THE
INTERCOLLEGIATE ATHLETICS SETTING
IN HIGHER EDUCATION

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