

SUMMARY

Acquired immunodeficiency syndrome (AIDS) was first recognized as an entity in 1981 (Centers for Disease Control, 1981), and the etiologic agent, the human immunodeficiency virus (HIV), was characterized in 1983 (Barre-Simoussi, et al., 1983; Gallo, 1984). In this decade, the scientific community and the public have become increasingly aware of the severity and the scope of HIV infection. The World Health Organization (WHO) has described this problem in terms of three worldwide epidemics. The first epidemic in the 1970s was the silent pandemic of HIV infection, the second epidemic in the 1980s the clinical disease of AIDS, and the third the social, cultural, economic, and political response to the first two epidemics (WHO, 1988).

The HIV-1 (formerly called the human T-lymphotropic virus-Type III, HTLV-III, or the lymphadenopathy-associated virus, LAV) is a member of the retrovirus family. It infects human T cells, particularly the CD4 lymphocyte, which is a white blood cell essential to normal functioning of the immune system. In the lymphocyte, the virus replicates and escapes through holes produced in the cell membrane, thus destroying the infected cell. This depletion of CD4 cells results in an immune deficiency, causing the infected individual to be susceptible to infection with opportunistic organisms that would normally be harmless (Gallo, 1987). Although the HIV can exist in a latent form for long periods of time, it eventually results in profound, fatal immunosuppression (Fauci, 1988). WHO has estimated that there are approximately 10 million HIV-infected individuals worldwide, and by February 1990, patients with AIDS had been reported in 151 countries (WHO, 1990). About 70 percent of these cases have occurred in the United States (Piot, et al., 1988).

More than 40 percent of the 50,000 cases of AIDS occurring in the United States between 1981 and 1987 were diagnosed in 1987 alone, partly as a result of a revision in the Centers for Disease Control (CDC) case definition (Curran, et al., 1988, CDC, 1987). As of January 1990, almost 122,000 cases of AIDS had been reported to the CDC (1989, 1990). The costs of health care associated with AIDS through 1991 have been estimated at about \$22 billion (Bloom & Carliner, 1988).

CDC CASE DEFINITION OF AIDS

(Revised in 1987)

AIDS is a disabling or life-threatening illness caused by human immunodeficiency virus (HIV) characterized by HIV encephalopathy, HIV wasting syndrome, or certain diseases due to immunodeficiency in a person with laboratory evidence for HIV infection or without certain other causes of immunodeficiency.

HIV infection can be detected with a high degree of sensitivity and specificity with enzyme-linked immunosorbent assay (ELISA) and Western blot, and newer biological and chemical techniques such as polymerase chain reaction may be more diagnostically valid. The CDC definition for AIDS provides clinical and laboratory diagnostic criteria (CDC, 1987). Several major classification schemes have been developed to describe the spectrum of infection (CDC, 1986; Redfield, Wright & Tramont, 1986), ranging from asymptomatic infection, to a mild mononucleosis-like syndrome, to frank AIDS. Median incubation period from infection to development of symptomatic AIDS has been estimated to be 34 months for children and 46 months for adults infected through blood transfusions, and considerably longer, 7-8 years, following sexual exposure. The variation in incubation period is clearly wide (Lifson, Rutherford, & Jaffe, 1988).

The virus is transmitted primarily by three routes: sexual, parenteral, and perinatal. Infection was first identified among homosexual and bisexual men, who still represent the largest group of infected individuals. Seroprevalence surveys have revealed infection rates among homosexual and bisexual men of 20 to 50 percent (Curran et al., 1988). However, changes in the practice of such high-risk behaviors as unprotected anal intercourse and multiple sexual partners have been reported among homosexual and bisexual men (Allen & Curran, 1988; Carne et al., 1987). Infection rates associated with HIV-contaminated blood products are also declining because of screening tests for blood. On the other hand, rates are increasing among intravenous (IV) drug users and minority groups. Black and Latino individuals have rates 3 to 12 times those of whites, partially a result of the higher prevalence among those individuals of IV drug use and subsequent spread to their sexual partners and children (Curran et al., 1988). Increasing evidence points to spread among heterosexual populations (Haverkos & Edelman, 1988), particularly among IV drug users and sexually active adolescents. Unlike the changes in the behavior of homosexual men, the incidence of high-risk behaviors, such as needle sharing and unprotected sex, have not to date shown dramatic decreases among adolescents and IV-drug users (DesJarlais, et al., 1987; DiClemente, Zorn, & Temoshok, 1986).

Major strides have been made in therapeutic interventions to reduce symptoms and treat opportunistic infections. A variety of treatment and preventive modalities such as monocytic activators, biologic modifiers, immunomodulating agents, anti-retroviral therapy, and vaccines are in various stages of clinical trials (Kaplan, Wofsy, & Volberding, 1987). Nevertheless, HIV infection is currently incurable.

Because infected individuals present a myriad of complex health and nursing care issues and because prevention of HIV transmission constitutes the major focus for controlling the epidemic in the absence of an effective vaccine or curative treatment, this nursing research priority area was entitled HIV Infection: Prevention and Care. Nurses have been actively involved in care of patients infected with the HIV since the onset of the epidemic. This report was prepared to enhance the depth of nursing science underlying nursing practice by highlighting research needs and opportunities for nurse scientists.

ROUTES OF TRANSMISSION OF HIV

Sexual

- Homosexual between men
- Heterosexual from men to women

<p>and women to men</p> <p>Exposure to Blood</p> <ul style="list-style-type: none"> • Drug user needle sharing • Transfusion of blood, plasma, packed cells, platelets, and factor concentrates • Occupational needlestick injury and other blood exposures <p>Perinatal</p> <ul style="list-style-type: none"> • During pregnancy, intrapartum, and postpartum (via breastfeeding) <p>(HHS/PHS/CDC)</p>
--

Program Structure and Organization of the Report

Recognizing that the HIV epidemic has stimulated a major research endeavor by essentially every health care profession and agency, the Panel sought to delineate ways in which nursing research could best contribute to the growing body of scientific knowledge in this area. To identify the most pressing issues for research related to nursing practice, the Panel applied the seven "Criteria for Promising Dimensions" delineated by the Steering Committee (see Preface) to identify and prioritize five general areas of concern:

- Physiological aspects of nursing care
- Psychosocial aspects of nursing care
- Delivery of nursing care
- Prevention of transmission
- Ethical issues

Panel members used the same criteria for promising dimensions to prioritize, from a myriad of possible research topics, issues that became specific recommendations for research within each of these five general areas. Because ethics is a pervasive cross-cutting issue which has important implications across physiological and psychosocial care issues as well as systems of care delivery, the Panel elected to incorporate recommendations for empirically-based ethical research into each of the other four priority areas. Areas of particular concern to the Panel included screening, confidentiality, counseling, notification of individuals and partners, and obtaining informed consent (Bayer, 1989; Grady, 1989).

The Panel then identified populations of special interest for nursing research: IV drug users, sexual partners of infected individuals, infected women of childbearing age, neonates of infected mothers, sexually active adolescents, minorities, and the disenfranchised. Additionally, in the preparation of this report, the Panel used an expanded definition of family to include non-traditional configurations and relationships defined as significant to the individuals involved. The intent of the recommendations in each chapter is to emphasize research focused

on these groups.

This report comprises four chapters, one for each of the identified priority areas for nursing research. The chapters are not presented in priority order, but rather are logically sequenced with prevention first, care of the individual second, and care delivery at the organization and systems levels last:

Chapter 1. Prevention of Transmission

Chapter 2. Physiological Aspects of Nursing Care

Chapter 3. Psychosocial Aspects of Nursing Care

Chapter 4. Delivery of Nursing Care

Each chapter in this report begins with an introduction that highlights the importance of the research area it addresses. This is followed by a review of the state-of-the-science in that area and a discussion of research needs and opportunities. Based on the identified needs and opportunities, each chapter concludes with a series of recommendations.

Research Program Goals

Recognizing the magnitude of nursing-care issues and problems associated with HIV infection and the implications for a nursing research agenda, the Panel has set the following broad goals to guide research in this area:

- To identify health-care needs of individuals who are infected or who practice high-risk behaviors from which appropriate nursing therapies might be derived.
- To develop effective nursing interventions to prevent HIV transmission.
- To develop effective nursing interventions to maintain optimal patient and family physiological and psychosocial functioning across the spectrum of illness.
- To test models of nursing care delivery to individuals who are infected or practice high-risk behaviors.
- To examine ethical dilemmas in providing nursing care and to establish an empirical basis for ethical decision making in nursing care.

Overview of Current NCNR Research Support

The numbers, types, and breadth of research and research training projects in the area of HIV infection has been growing since the first award was made by NCNR in August of 1988. As part of the mission of the National Institutes of Health, the National Center for Nursing Research, along with other components of the Public Health Service, published a Program Announcement (PA) in 1988, requesting research related to the behavioral aspects of HIV. Another PA was issued in 1989, requesting research related to nursing care of persons infected with HIV. Numerous applications have been submitted as an outgrowth of these announcements, including applications from new investigators pursuing the First Independent Research Support and Transition Award (FIRST), and applications from experienced scientists pursuing traditional Research Project Grants. Training mechanisms have been used by many doctoral candidates, and an Institutional National Research Service Award with a multidisciplinary approach in preparing nurses in HIV-related research has been awarded. Funded research and training topics include: description of physiological and psychological factors in HIV-positive individuals and their caretakers; identification of optimum modalities

of nursing care for hospitalized patients diagnosed with *Pneumocystis carinii* pneumonia; implementation of a computer network to augment nursing care; the description and evaluation of care delivery systems in the hospital, home, clinic and hospice; description of ethical decisions made by patients with HIV; identification of the risk of HIV transmission in infants, pregnant women, and college students; and development of prevention strategies among populations practicing high-risk behaviors.

Research Needs and Opportunities

The biomedical community has responded to the rapidly spreading HIV outbreak with a proliferation of scientific inquiry into the basic immunologic and pathologic mechanisms underlying this immune deficiency, and considerable resources have been earmarked for federal funding of such research (Coolfont Report, 1986; Report of the Second Public Health Services AIDS Prevention and Control Conference, 1988; Office of AIDS Research, 1988). Six international conferences on AIDS have been attended by thousands of biomedical researchers and practitioners. The most recent of these was held in June 1990 in San Francisco. The Executive Branch of the United States' government has responded by commissioning a major report to provide direction to the Nation on the medical, legal, social, and economic impact of the epidemic (Presidential Commission on the Human Immunodeficiency Virus Epidemic, 1988). Subsequently, another National Commission was put in place, and is now actively working. Nursing professional organizations such as the American Nurses' Association and the National League for Nursing, as well as the Division of Nursing of the Health Resources and Services Administration, and NCNR have responded with guidelines for the care of HIV-infected individuals, and with an action agenda for practice, education, research, and policy (Miramontes, Boland, & Corless, 1988; National League for Nursing, 1988; Phillips & Bloch, In press).

Nurses play a major role in responding to the needs of individuals with HIV infection and in providing primary-care services to patients with AIDS. In providing comprehensive care, nurses face multiple decisions related to the type of nursing care and support systems needed by these individuals. As an individual's disease progresses, nurses provide counseling to family members, partners, and friends of patients with AIDS and make recommendations about their physical and psychosocial needs. What type of nursing care is required to assist these individuals as they progress from one stage of infection to the next? How can nurses best assist infected individuals and their caregivers to adapt and cope as illness progresses? What is the nurse's role in preventing transmission?

The scope and practice of nursing can be assessed through sound clinical investigation. Although nurses have been involved as professionals and volunteers in health care, education, and advocacy for HIV-infected individuals, nursing research, which takes an empirical approach to examining aspects of nursing care related to HIV infection, is in early stages of development.

From January 1983 through December 1988, 24 English-language papers reporting nursing research related to HIV infection were cited in the Index Medicus or Cumulative Index of Nursing and Allied Health Literature. Fourteen of these were descriptive studies related to the measurement of knowledge and attitudes toward HIV infection or the educational needs of nursing students, nurses, or other health-care professionals (Baldwin & Vidler, 1988; Bowd & Loos, 1987; Flaskerud, 1987, 1988; Hansen, Booth, Fawal, & Langner, 1988; Kelly, St. Lawrence, Hood, Smith, & Cook, 1988; Lester & Beard, 1988; Nielsen, 1987; Stanford, 1988; Turner, Gauthier, Ellison, & Greiner, 1988; Van Servellen, Lewis, & Leake, 1988; Wiley, Heath, & Acklin, 1988; Wills, 1987; Young, 1988). Ten studies addressed clinical issues (Barrick, 1988; Bowles & Carwein, 1988; Carwein & Bowles, 1988; Edwards, 1988; Flaskerud

& Nyamathi, 1988; Lovejoy & Moran, 1988; Moran, Lovejoy, Viele, Dodd, & Abrams, 1988; Rosevelt, 1987; Trace, 1987; Williams, D'Aquila, & Williams, 1987). In addition, two reviews identified research priorities related to AIDS (Cohen, 1988; Larson, 1988). The needs and opportunities for nursing research in the care aspects of HIV infection are clear.

To date, much of the formal health care provided to persons with AIDS has been in the acute care setting. AIDS places an unprecedented burden on the health-care system. Sundwall & Bailey (1988) estimated that almost 13,000 hospital beds will be occupied by AIDS patients by 1991; treatment costs are estimated at about \$61,000 per patient (Hellinger, 1988). The Panel recognized that the NCNR must take the lead in funding projects to identify optimal ways to meet the care needs of HIV-infected individuals, assess alternative systems that can facilitate cost-effective and humane care, and ascertain effective roles for the nurse in prevention of transmission. That is an immense task, but, fortunately, much research done by nurse researchers and others in such fields as oncology, stress and coping, death and dying, infection control, and assessment of care-delivery systems can be applied to the problem of HIV infection.

Training and Manpower Needs

The Panel identified a number of high-priority areas for research. Because HIV infection was recognized fairly recently as a major health problem in the United States, there is only a small pool of nurse scientists with direct training to conduct research with HIV-infected persons. To expand the cadre of qualified nurse researchers, two approaches are recommended. First, nurse scientists with expertise in related fields such as epidemiology, immunology, oncology, health-care systems, or psychology should be offered opportunities to gain additional knowledge in cognates that would assist them in conducting HIV-related research. This training could be conducted either informally through directed readings and close collaboration with an active HIV-research group, or formally with postdoctoral or senior fellowship support. Second, curricula should be developed to support training at the predoctoral level. Institutions that elect to participate in such training should offer intensive preparation in research methodology, encourage the development of strong knowledge bases in the biological and social sciences, and provide clinical researchers to serve as mentors in conducting clinical research. The needs of trainees at both the predoctoral and postdoctoral levels can best be served by offering information and the opportunity to discuss issues that may cause discomfort in dealing with individuals at risk for HIV infection (e.g. sexuality, drug use, death). In addition, training institutions need to develop close ties with community-based centers, to afford trainees the opportunity to work with clients in a variety of settings. Collaboration between nurse scientists and scientists in other disciplines needs to be fostered. Training should also incorporate a sensitivity to the needs of the populations to be served as well as the problems associated with their community settings.

Summary of 1990-1994 Recommended Priorities

The Panel's specific recommendations for priority areas are included in the respective chapters of this Report. They are based on an assessment by the Panel members and their consultants of the current state of knowledge in the areas most likely to yield significant information related to the goals of the overall program. The four broad groups of recommendations are listed below in order of priority assigned to them by the Panel. No priority was assigned to the items within groups. These recommendations should serve as a guide and are not intended to stifle innovative projects that offer promise of important advances in preventing transmission of HIV or caring for infected individuals. The importance of an interdisciplinary approach to research related to HIV infection cannot be overemphasized. Nurse investigators are urged to actively seek collaboration with colleagues in other biomedical and social sciences to maximize research

endeavors. In summary, the Panel recommends the following.

Physiological Aspects of Nursing Care

- Investigate strategies to effectively manage physical symptoms associated with HIV infection, including: dyspnea, inadequate nutrition, diarrhea, neurocognitive dysfunction, nosocomial infections associated with compromised host defenses, fatigue, and pain.
- Assess short- and long-term effects of behavioral and other nonmedical therapies on disease progression and quality of life in HIV-infected persons. Examples include: exercise, relaxation, touch/massage, and nutritional support.
- Evaluate strategies to increase the adherence of HIV-infected persons to therapeutic regimens.
- Describe the clarity and manner in which HIV-infected persons are informed of their treatment options and how this affects decision-making ability.

Psychosocial Aspects of Nursing Care

- Identify psychosocial variables that have a significant impact upon the course of HIV infection, as experienced by different patient populations.
- Examine the relationship of psychosocial variables such as social support to patient and family adaptation to HIV infection.
- Examine variations in psychosocial needs among critical populations such as infected IV drug users, women, and children, and among caregivers of infected individuals.
- Test nursing interventions to promote psychosocial adaptation to HIV infection for both the patient and his/her significant others.

Delivery of Nursing Care

- Describe the health care needs of adults, adolescents, and children at different stages of HIV infection: asymptomatic, acutely ill, chronically ill, terminally ill.
 - Identify the special needs of specific groups of infected persons at different stages, particularly minority homosexuals; minority women who acquired infection heterosexually; neonates and families with multigenerational disease; adolescents; HIV-demented patients who are also homeless; infected spouses of hemophiliacs and others infected by trans-fusion; IV drug users.
 - Describe the influence of family dynamics and social, economic, cultural, and geographic differences on the need for health-care services.
- Evaluate the appropriateness, continuity, and use of HIV-related health-care services available in various communities.
 - Evaluate various methods of nursing-care delivery for HIV infected individuals in different settings, particularly case management.
 - Compare the quality, cost, patient satisfaction, accessibility, morbidity and mortality, and other outcome indicators in various settings and with several methods of inpatient care, such as centralized versus dispersed placement, age-specific groupings, and use of AIDS coordinators.
- Evaluate the effectiveness of different categories or groupings of health care personnel; for example, AIDS coordinators, AIDS resource/consult teams, and AIDS clinical specialists.
- Identify effective methods for recruitment, retention, and support of nursing staff working with HIV-infected populations.
 - Evaluate the long-term effects of death and dying and the grief process on personnel providing care to persons with HIV infection.
 - Test strategies to promote the use of universal precautions by health care

personnel.

Prevention of Transmission

- High Risk Behaviors
 - Conduct epidemiologic studies to establish prevalence of high-risk practices; for example, prevalence of various types of sex acts performed by prostitutes or inhabitants of correctional systems.
 - Identify gender-related cofactors for HIV infection among IV-drug users.
 - Determine the extent of condom and spermicide use in high-risk populations, particularly adolescents, persons using psychoactive drugs, persons who engage in sex for money or drugs, and partners of infected individuals.
 - Identify determinants of high-risk sexual practices among school and college-age persons, and sexual partners of HIV-infected or high-risk persons, especially minorities, and prostitutes.
 - Assess the effects of notification of HIV seropositivity on behavior of infected individuals, their sexual partners, and needle sharers.
- Interventions to Reduce High Risk Behaviors
 - Identify and test educational or counseling strategies implemented by nurses to enhance behavior change among these populations. Strategies should include factors of proven efficacy in other trials, or application of innovations appropriate to the behaviors and audiences addressed.
 - Assess the duration of behavior change and determine rates of and factors associated with recidivism.
 - Evaluate nursing interventions to reduce recidivism following behavior change.
 - Evaluate efficacy of practices (e.g. universal precautions) of health-care providers to prevent transmission of HIV infection.

Implementation of the Plan

The National Nursing Research Agenda (NNRA) represents the first major effort of the NCNR to specify priorities for nursing research funding. The purposes of the NNRA are to: provide structure for selecting scientific opportunities and initiatives; promote depth in developing a knowledge base for nursing practice; and provide direction for nursing research within the discipline. Dr. Ada Sue Hinshaw, Director of the NCNR, has stated the philosophy as follows:

The need to target certain high-priority health care concerns of society for the discipline's scientific endeavors would allow focusing a portion of nursing resources on relevant areas in which the profession is judged to have the strongest influence. Over time, the targeting of specific research priority areas will also deepen the nursing science base in the targeted substantive fields. Given the breadth of nursing research, if the profession wishes to be societally relevant as well as build excellence in science, both the scientific endeavors and resources need to be partially focused on major areas of research priorities determined by the nursing scientific community (Hinshaw, 1988, p. 56).

The successful implementation of the recommendations of the Priority Expert Panel on HIV infection is dependent on the submission of applications for research, research training, and research career development awards which are responsive to the priority areas recommended by this Panel. Several methods will be used to encourage the submission of such applications, a process which has already begun. NCNR staff have disseminated information about the Panel's work since its inception. But the publication of this Report and its distribution to multiple audience, foremost of which is the potential applicant pool, will constitute the major dissemination effort.

The major implementation activities will be in the form of Requests for Applications (RFAs) and Program Announcements (PAs) published in the NIH Guide for Grants and Contracts. Both mechanisms are designed to stimulate application activity, and both specify the interests of the NCNR in some detail. An RFA is a one-time call for applications in a targeted area, with funds specifically set aside, and applications reviewed by a specially constituted review group. In contrast, a PA describes an area of ongoing interest rather than a one-time call. Applications resulting from a PA are reviewed in the customary manner with no funds set aside.

Virtually all funding mechanisms used by the NCNR can be used. Announcements will provide specific information needed by potential applicants. Applicants are encouraged to contact NCNR program staff in the early stages of application development to discuss their preliminary plans for applications. All applications are subject to the dual review system normally used at the National Institutes of Health (NIH), where an application is reviewed for scientific merit by a scientific review group, and for programmatic considerations by the National Advisory Council for Nursing Research (or another specially constituted group).

Only a proportion of the NCNR's resources will be used for applications focused on the NCNR's specified priorities; a significant portion of NCNR funds will remain available for applications which address topics other than the priority areas, and which are judged by the peer review system to be of high scientific merit.

Resource Requirements

The following table presents a summary of the Panel's estimates of the number of grants necessary to carry out its recommendations for the HIV infection program over the next five years. The first two columns list the chapter number and title. The third column represents the prioritization of each of the program's four topic areas, based on Criteria for Promising Dimensions (see Preface). The fourth column lists the number of grants funded in these priority areas by the NCNR through Fiscal Year 1989. The last column indicates the total number of grants the Panel recommends for funding in each of the areas through the next five years, based on an analysis of current research and of anticipated future needs and opportunities.

The number of grants funded in these areas may, of course, be either more or fewer than these projections indicate, depending on the quality, type, number, and costs of the grant applications the NCNR receives and the availability of funds. The Panel's estimates of the research needed to move forward the recommended program of nursing research on HIV infection were made to enable informed judgments on the part of those in the Executive and Legislative branches who make final budget decisions. The Panel recognizes that in addition to scientific judgments, social, economic, and political considerations will shape the final budget for each year. The Panel also understands that the research agenda and specific plans will be modified as necessary on a year-to-year basis.

Topic Areas	Rank	# of Grants Funded Through FY 1989	Recommended # of Grants (5Yrs)
1. Prevention of Transmission	4	3	15
2. Physiological Aspects of Nursing Care	1	2	40
3. Psychosocial Aspects of Nursing Care	2	4	25
4. Delivery of Nursing Care	3	4	20

Total			100
-------	--	--	-----

References

- Allen, J.R., & Curran, J.W. (1988). Prevention of AIDS and HIV infection: Needs and priorities for epidemiologic research. *American Journal of Public Health*, 78, 381-386.
- Baldwin, S., & Vidler, K. (1988). AIDS and general nursing training curricula: A survey of U.K. schools of nursing. *Nurse Education Today*, 8, 36-38.
- Barre-Simoussi, F., Chermann, J.C., Rey, F., Nugeyre, M.T., Chamaret, S., Gruest, J., Dauguet, C., Axler-Blin, C., Vezinet-Brun, C., Rouzioux, C., Rozenbaum, W., & Montagnier, L. (1983). Isolation of a T-lymphotropic retrovirus from a patient at risk for acquired immune deficiency syndrome (AIDS). *Science*, 220, 868-871.
- Barrick, B. (1988). The willingness of nursing personnel to care for patients with acquired immunodeficiency syndrome: A survey study and recommendations. *Journal of Professional Nursing*, 4, 366-372.
- Bayer, R. (1989). Perinatal transmission of HIV infection: The ethics of prevention. *Clinical Obstetrics and Gynecology*, 32, 497-505.
- Bloom, D.E., & Carliner, G. (1988). The economic impact of AIDS in the United States. *Science*, 239, 604-610.
- Bowd, A.D., & Loos, C.H. (Winter, 1987). Nursing students' knowledge and opinions concerning AIDS. *Nursing Papers*, 19(4), 11-20.
- Bowles, C.L., & Carwein, V.L. (1988). Survey of baccalaureate nursing schools' guidelines/policies on AIDS. *Journal of Nursing Education*, 27, 349-353.
- Carne, C.A., Weller, I.V., Johnson, A.M., Loveday, C., Pearce, F., Hawkins, A., Smith, A., Williams, P., Tedder, R.S., & Adler M.W. (1987). Prevalence of antibodies to human immunodeficiency virus, gonorrhoea rates, and changed sexual behavior in homosexual men in London. *Lancet*, 1, 656-658.
- Carwein, V.L., & Bowles, C.L. (March-April, 1988). AIDS policy and guidelines development. *Nurse Educator*, 13(2), 14-16.
- Centers for Disease Control. (1981). Kaposi's sarcoma, Pneumocystis pneumonia among homosexual men - N.Y.C. & California. *Morbidity and Mortality Weekly Reports*, 30, 305-308.
- Centers for Disease Control. (1986). Classification system for human T-lymphotropic virus type III/ lymphadenopathy-associated virus infections. *Annals of Internal Medicine*, 105, 234-237.
- Centers for Disease Control. (1987). Revision of the CDC surveillance case definition for acquired immunodeficiency syndrome. *Morbidity and Mor-tality Weekly Report*, 36(1 Suppl), 35-155.

Centers for Disease Control (1989). First 100,000 cases of acquired immunodeficiency syndrome-United States. *Morbidity and Mortality Weekly Report*, 38, 561-563.

Centers for Disease Control. (1990, February). HIV/AIDS surveillance. Atlanta: Division of HIV/AIDS, CDC (no volumes).

Cohen, F.L. (1988). Acquired immunodeficiency syndrome research in critical care: A review and future directions. *Focus on Critical Care*, 15(4), 30-35.

Coolfont Report. (1986). A PHS plan for prevention and control of AIDS and the AIDS virus. *Public Health Reports*, 101, 341-348.

Curran, J.W., Jaffe, H.W., Hardy, A.M., Morgan, W.M., Selik, R.M., & Dondero, T.J. (1988). Epidemiology of HIV infection and AIDS in the United States. *Science*, 239, 610-616.

DesJarlais, D.C., Wish, E., Friedman, S.R., Ston-burner, R., Yancovitz, S.R., Mildvan, D., El-Sadz, W., Brady, E., & Cuadrado, M. (1987). Intravenous drug use and the heterosexual transmission of human immunodeficiency virus: Current trends in New York City. *New York State Medical Journal*, 20, 283-286.

DiClemente, R.J. Zorn, J., & Temoshok, L. (1986). Adolescents and AIDS: A survey of knowledge, attitudes and belief about AIDS in San Francisco. *American Journal of Public Health*, 76, 1443-1445.

Edwards, N. (Spring-Summer, 1988). AIDS among incarcerated females. *Journal of The National Black Nurses Association*. 2 (2), 36-46.

Fauci, A.S. (1988). The human immunodeficiency virus: Infectivity and mechanisms of pathogenesis. *Science*, 239, 617-622.

Flaskerud, J.H. (1987). Nurses call out for AIDS information. *Nursing and Health Care*, 8, 557-562.

Flaskerud, J.H. (1988). Community health nurses' AIDS information needs. *Journal of Community Health Nursing*, 5, 149-157.

Flaskerud, J.H., & Nyamathi, A.M. (1988). An AIDS education program for Vietnamese women. *New York State Journal of Medicine*, 88, 632-637.

Gallo, R.C., Salahuddin, S.Z., Popovic, M., Shearer, G.M., Kaplan, M., Haynes, B.F., Palker, T.J., Redfield, R., Oleske, J., Safai, B., White, G., Foster, P., & Markham, P.D. (1984). Frequent detection and isolation of cytopathic retrovirus (HTLV-III) from patients with AIDS and at risk for AIDS. *Science*, 224, 500-503.

Gallo, R.C. (1987). The AIDS virus. *Scientific American*, 256, 46-56.

Grady, C. (1989). Ethical issues in providing nursing care to human immunodeficiency virus-infected populations. *Nursing Clinics of North America*, 24, 523-534.

Hansen, B., Booth, W., Fawal, H.J., & Langner, R.W. (1988). Workers with AIDS. Attitudes of fellow employees. *American Association of Occupational Health Nurses Journal*, 36, 279-283.

- Haverkos, H.W., & Edelman, R. (1988). The epi-demiology of acquired immunodeficiency syndrome among heterosexuals. *Journal of The American Medical Association*, 260, 1922-1929.
- Hellinger, F. (1988). Forecasting the personal medical care costs for AIDS for 1988 through 1991. *Public Health Reports*, 103, 309-323.
- Hinshaw, A.S. (1988). The National Center for Nursing Research: Challenges and initiatives. *Nursing Outlook*, 36(2), 54-56.
- Kaplan, L.D., Wofsy, C.B., & Volberding, P.A. (1987). Treatment of patients with acquired immunodeficiency syndrome and associated manifestations. *Journal of the American Medical Association*, 257, 1367-1374.
- Kelly, J.A., St. Lawrence, J.S., Smith, S., Hood, H.V., & Cook, D.J. (March-April, 1988). Nurses' attitudes towards AIDS. *Journal of Continuing Education in Nursing*, 19(2), 78-83.
- Larson, E.L. (1988). Nursing research and AIDS. *Nursing Research*, 37, 60-62.
- Lester, L.B., & Beard, B.J. (1988). Nursing students attitudes toward AIDS. *Journal of Nursing Education*, 27, 399-404.
- Lifson, A.R., Rutherford, G.W., & Jaffe, H.W. (1988). The natural history of human immunodeficiency virus infection. *The Journal of Infectious Disease*, 158, 1360-1367.
- Lovejoy, N.C., & Moran, T.A. (1988). Selected AIDS beliefs, behaviors and informational needs of homosexual/bisexual men with AIDS or ARC. *International Journal of Nursing Studies*, 25, 207-216.
- Miramontes, H., Boland, M.G., & Corless, I.B. (1988). *Nursing and the human immunodeficiency virus: A guide for nursing's response to AIDS*. Kansas City, MO: American Nurses' Association.
- Moran, T.A., Lovejoy, N., Viele, C.S., Dodd, M.J., Abrams, D.I. (1988). Informational needs of homo-sexual men diagnosed with AIDS or AIDS-related complex. *Oncology Nursing Forum*, 15, 311-314.
- National Institutes of Health. (1987, January 23). NIH Guide for Grants and Contracts, 16(3), 1.
- National League for Nursing. (August 1988). *AIDS guidelines for schools of nursing*. New York: National League for Nursing.
- Nielsen, C. (December, 1987-February 1988). AIDS: Attitudes and risks in the occupational setting. *Australian Journal of Advanced Nursing*, 5(2), 46-52.
- Office of AIDS Research. (February 26, 1988). *Introduction and Overview of the NIH AIDS Research Program. Proceedings of the First Meeting of the Acquired Immunodeficiency Syndrome Program Advisory Committee*. Bethesda, MD: National Institutes of Health.
- Phillips, T., & Bloch, D. (Eds.) (In press). *Nursing and HIV epidemic: A national action agenda*. Proceedings of the Conference, October 1989. Division of Nursing and National Center

for Nursing Research, DHHS.

Piot, P., Plummer, F.A., Mhalu, F.A. Lamboray, J.L. Chin, J., & Mann, J.M. (1988). AIDS: An international perspective. *Science*, 239, 573-579.

Presidential Commission on the Human Immuno-deficiency Virus Epidemic. (1988). Report of the Presidential Commission on the Human Immuno-deficiency Virus Epidemic. Washington, DC: US Government Printing Office: 1988 0-214-701:QL3.

Redfield, R.R., Wright, D.C., & Tramont, E.C. (1986). The Walter Reed Staging classification for HTLV-III/LAV infection. *New England Journal of Medicine*, 314, 131-132.

Report of the Second Public Health Service AIDS Prevention and Control Conference. (1988). *Public Health Reports*, 103(Suppl. No. 1), 1-109. Washington, DC: US Government Printing Office: 1989 0-228-084.

Rosevelt, J. (1987). Support for workers with AIDS: Workplace discrimination as perceived by gay men with AIDS or ARC. *American Association of Occupational Health Nurses Journal*, 35, 397-402.

Stanford, J. (June 15-21, 1988). Knowledge and attitudes toward AIDS. *Nursing Times*, 84 (24), 47-50.

Sundwall, D., & Bailey, D. (1988). Meeting the needs of people with AIDS: Local initiatives and federal support. *Public Health Reports*, 103, 293-298.

Trace, L.D. (December 1987). The total cost of nursing care for patients with AIDS. New York: National League for Nursing, Publication #20-2191, 231-248.

Turner, J.G., Gauthier, D.K., Ellison, K.J., & Greiner, D.S. (1988). Nursing and AIDS: Knowledge and attitudes. *American Association of Occupational Health Nurses Journal*, 36, 274-278.

Van Servellen, G.M., Lewis, C.E., & Leake, B. (1988). Nurses' responses to the AIDS crisis: Implications for continuing education programs. *Journal of Continuing Education in Nursing*, 19, 4-8.

Wiley, K., Heath, L., & Acklin, M. (1988). Care of AIDS patients: Student attitudes. *Nursing Outlook*, 36, 244-245.

Williams, A.B., D'Aquila, R.T., & Williams, A.E. (1987). HIV infection in intravenous drug abusers. *Image*, 19, 179-183.

Wills, D.J. (August, 1987). AIDS: A survey of nurses' attitudes. *New Zealand Nursing Forum*, 15(3), 6-7.

World Health Organization (1988). Guidelines for nursing management of people infected with human immunodeficiency virus (HIV). WHO AIDS Series 3. Geneva: World Health Organization.

World Health Organization. (1990, March 2). Acquired immunodeficiency syndrome (AIDS). Data as of 28 February 1990. *Weekly Epidemiological Record*, 65, 61-62.

Young, E.W. (1988). Nurses' attitudes toward homosexuality: Analysis of change in AIDS workshops. *Journal of Continuing Education in Nursing*, 19, 9-12.

TABLE OF CONTENTS

CHAPTER 1