

1                   DECLARATION OF PAUL A. VOLBERDING, M.D.

2           I, Paul A. Volberding, M.D., do hereby make the following  
3 declaration in support of the Application for a Temporary  
4 Restraining Order and Order to Show Cause Re: Preliminary  
5 Injunction:

6           1.     I attended the University of Minnesota School of  
7 Medicine from 1971 to 1975, and received my M.D. degree from that  
8 institution in 1975. From 1976 to 1978, I did an internship and  
9 residency in Internal Medicine at the University of Utah. From  
10 1978 to 1981, I had a Hematology/Oncology Fellowship at the  
11 University of California at San Francisco ("UCSF"), and  
12 thereafter joined its faculty. From 1981 to 1982, I was the  
13 medical oncology consultant to the Malignant Melanoma Clinic at  
14 UCSF.

15           2.     I am currently an Assistant Professor of Medicine at  
16 UCSF and Chief of Medical Oncology at San Francisco General  
17 Hospital ("SFGH"), and have been so employed since July 1, 1981.  
18 In addition, I am Director of the Acquired Immune Deficiency  
19 Syndrome ("AIDS") Clinic at SFGH and Co-director of the Kaposi's  
20 Sarcoma Clinic at UCSF. I serve on the Boards of Directors of  
21 the American Cancer Society/San Francisco and the AIDS & KS  
22 Research and Education Foundation. Over the past several years,  
23 I have written or participated in the writing of numerous  
24 professional articles on AIDS and Kaposi's Sarcoma. My  
25 curriculum vitae, which includes a complete list of my

26   / / /

1 publications, is attached hereto as Exhibit 1 and incorporated  
2 herein by reference as though fully set forth.

3         3.     In my capacity as Chief of Medical Oncology and  
4 Director of the AIDS Clinic at SFGH, my major responsibility is  
5 to oversee the diagnosis and treatment of all patients at SFGH  
6 with AIDS, herein defined to refer to patients meeting the  
7 criteria of the Center for Disease Control ("CDC") in Atlanta  
8 (which includes the presence of diseases considered diagnostic of  
9 an underlying immune deficiency such as Kaposi's Sarcoma, central  
10 nervous system lymphoma, or infections such as pneumocystis  
11 pneumonia). I also treat patients, supervise six full time  
12 physicians, six nurses and approximately thirty clerical and  
13 other staff members, and supervise the training of medical  
14 students in the treatment of patients. At the present time, I  
15 have approximately 300 patients with AIDS or AIDS-related  
16 diseases.

17         4.     The first contact that I had with AIDS was in July,  
18 1981, when I commenced my employment at SFGH. The week before I  
19 began, the first patient with Kaposi's Sarcoma was admitted to  
20 that facility. In the course of obtaining a medical history, the  
21 patient related that he previously had been employed at a gay  
22 male bathhouse, where he had had numerous sexual contacts with  
23 patrons. Attached as Exhibit 2 hereto is a picture of the  
24 patient taken approximately two months after his admission in  
25 July, 1981. He died in October, 1981. Kaposi's Sarcoma normally  
26 does not affect people until they are in their 70's or 80's.



1 During my medical school training, residency and oncology  
2 fellowship, I had never seen a patient with Kaposi's Sarcoma.  
3 Therefore, it was striking to me to see a 22-year old man with a  
4 very aggressive form of this disease. That same week, the CDC  
5 had just published its first report alerting physicians to the  
6 possibility of a new disease affecting homosexual men associated  
7 with Kaposi's Sarcoma, and I became very interested in further  
8 studies of the syndrome. Over the next two to three months, I  
9 saw several more patients with Kaposi's Sarcoma at SFGH.

10 5. In my capacity as a medical oncology consultant to  
11 the Malignant Melanoma Clinic at UCSF, I met Dr. Marcus Conant in  
12 September, 1981. I mentioned to him that I had several patients  
13 with Kaposi's Sarcoma. He took me to see several of his Kaposi's  
14 Sarcoma patients at UCSF. On the basis of our experience and the  
15 reports that had been published suggesting that this was a new  
16 disease affecting homosexual men, we realized that we would be  
17 seeing more cases because of the large number of risk group  
18 members in San Francisco. Therefore, we started a Kaposi's  
19 Sarcoma Clinic at UCSF, which I believe was the first facility  
20 devoted to AIDS in the entire country.

21 6. Over the next year, Dr. Conant and I saw ever  
22 increasing numbers of patients affected by Kaposi's Sarcoma, and  
23 became very alarmed when we saw that the disease was extremely  
24 aggressive and rapidly fatal. We quickly realized that we would  
25 be better able to study the treatment of Kaposi's Sarcoma in AIDS  
26 in a more controlled fashion if patients were referred to a

1 single facility. Because of my special interest in the syndrome,  
2 we decided that all patients with Kaposi's Sarcoma would be  
3 referred to the Oncology Clinic at SFGH for protocol therapy,  
4 where there would be controlled treatment with careful follow-up  
5 and the use of both conventional and experimental drugs.

6       7. Based on the clinical appearance of patients with  
7 AIDS and the concentration of the disease in specific risk  
8 groups, AIDS researchers suspected from the start that the  
9 disease was caused by an infectious agent, most likely a virus.  
10 The findings of numerous published investigations strongly  
11 suggested an infection and destruction of the cells in the immune  
12 system. Recently, investigators in both the United States and  
13 France identified a new viral agent in patients with AIDS or in  
14 AIDS risk groups. The current view is that this virus, variously  
15 termed LAV or HTLVIII, causes AIDS by preferentially infecting  
16 and damaging T-lymphocytes (cells of the immune system). The  
17 infection of the cells is chronic, but viral shedding of the  
18 infected cells may be intermittent. Thus, after exposure to the  
19 virus, outcomes for the infected person may include the  
20 development of AIDS, the development of immunity to AIDS, or a  
21 chronic carrier state. In those infected individuals who develop  
22 AIDS, the breakdown in their immune system causes an increased  
23 susceptibility to a wide variety of clinical problems, including  
24 infections and cancers, most of which ultimately are fatal.

25       The form of AIDS I personally have been most involved with  
26 is a common malignancy, Kaposi's Sarcoma ("KS"). This disease is



1 a tumor of the cells lining the lymphatic vessels. These vessels  
2 normally function to drain fluids from body tissues. KS, unlike  
3 most cancers, does not have a primary site with secondary sites  
4 of involvement. Rather, it can affect many regions of the body  
5 simultaneously. Prior to the AIDS epidemic, KS generally  
6 affected elderly men and was rarely fatal. In AIDS patients,  
7 however, the disease is much more aggressive and disseminates  
8 rapidly. The median age of patients affected by KS is now 35  
9 years and almost all are homosexual men. KS causes many clinical  
10 problems, but the most evident is the rapid progression of  
11 pigmented skin tumors affecting any part of the body. Patients  
12 usually do not die directly from KS, although this does occur in  
13 about 10 percent of patients with pulmonary involvement. More  
14 often, patients with KS die of a wasting illness or from  
15 secondary opportunistic infections such as pneumocystis pneumonia.

16 AIDS leads to numerous infections. These are classified as  
17 opportunistic infections because they are caused by organisms in  
18 the environment which only affect persons with damaged immune  
19 systems. These include parasitic, viral, fungal and bacterial  
20 organisms. The most common infection seen in AIDS patients is  
21 pneumocystis pneumonia, which is caused by a parasite present in  
22 the lungs and is reactivated in AIDS. Pneumocystis pneumonia  
23 does not affect healthy individuals. Before AIDS, the majority  
24 of the cases of this pulmonary infection were in children with  
25 acute leukemia undergoing chemotherapy or in patients following  
26 kidney transplantation.

1 Another clinical problem caused by AIDS is a diffuse  
2 enlargement of the lymph glands. AIDS experts estimate that this  
3 problem is ten to twenty times more common than CDC-defined  
4 AIDS. We have studied a number of patients in our clinics with  
5 diffuse lymphadenopathy. Dr. Donald Abrams, working in my  
6 clinic, has estimated that approximately 5 percent of these  
7 patients will progress to AIDS within two years.

8 8. Since July, 1981, the number of patients with AIDS  
9 and AIDS-related diseases at the UCSF and SFGH clinics has  
10 escalated alarmingly. At the end of 1982, we were seeing  
11 approximately ten patients per week for follow-up; by the end of  
12 1983, we were seeing approximately 150 per week. We currently  
13 record nearly 300 patient contacts per week, including patients  
14 with AIDS, patients with AIDS-related conditions, and risk-group  
15 members who are concerned that they might have AIDS. At present,  
16 approximately two new cases of AIDS are being diagnosed in San  
17 Francisco each day. To date, over 700 male homosexuals in San  
18 Francisco have been diagnosed with AIDS, with a mortality to date  
19 of nearly 50 percent. The number of persons with AIDS-related  
20 conditions is estimated to be ten to twenty times higher.

21 The existence of an AIDS epidemic in San Francisco has been  
22 confirmed by a study conducted in 1984 by the CDC and released on  
23 October 4, 1984. It is now possible to test persons for exposure  
24 to the AIDS virus. This testing is performed on serum and  
25 detects antibodies which confirm prior infection. The proportion  
26 of homosexual men tested in San Francisco who have antibody to



1 the AIDS virus is alarming. Serum collected from homosexual men  
2 visiting San Francisco's Venereal Disease Clinic show as many as  
3 66 percent with AIDS virus antibody. In contrast, a study in  
4 1978 on the same individuals showed less than 1 percent had been  
5 infected by the virus.

6 9. I personally have been involved in the care of well  
7 over 50 percent of the AIDS patients in San Francisco and have  
8 participated in the care of at least 300 patients with AIDS. Of  
9 these patients, greater than 97 percent have been sexually active  
10 homosexual men. The exceptions include one person with AIDS  
11 acquired as a result of hemophilia, two patients who were exposed  
12 to AIDS as a result of intravenous drug abuse, and one person for  
13 whom risk factors could not be identified. In the case of  
14 homosexual males, AIDS is transmitted through contaminated semen  
15 or other body fluids such as blood or saliva. Homosexual men are  
16 more commonly affected by AIDS because of direct inoculation of  
17 the AIDS virus into the bloodstream facilitated by trauma  
18 incurred during rectal intercourse.

19 10. In my opinion, AIDS represents a major health problem  
20 to the country and especially to the cities most affected by the  
21 epidemic, including New York, Miami, Los Angeles, and San  
22 Francisco. San Francisco, with the highest per capita rate of  
23 AIDS in the country, has been especially affected by this  
24 disease. AIDS is almost uniformly fatal and is always  
25 irreversible. Although some patients have survived several  
26 years, the majority of patients die within the first two years

1 following the diagnosis. I know of no patient who, once  
2 diagnosed with AIDS virus, has experienced spontaneous  
3 remission. One patient that I treated told me that as a result  
4 of successful treatment of his KS, he could return to a sexually  
5 active lifestyle because his partners would not realize he had  
6 AIDS. Several other patients of mine with AIDS have developed  
7 rectal gonorrhea. This, occurring months after the diagnosis of  
8 AIDS, is clear evidence of ongoing non-protected anal sexual  
9 intercourse. I recall that at a meeting in May, 1984 at the SFGH  
10 AIDS Clinic with owners of gay bathhouses, one owner commented:  
11 "Let's face it - we both make money from these guys; we make  
12 money from their sex, you make money when they're sick."

13 11. The care of patients with AIDS is difficult  
14 medically, emotionally and financially. These patients are  
15 generally in their 30's and highly educated about their illness.  
16 They usually face a rapidly progressing series of medical  
17 problems for which in many cases there is no effective therapy.  
18 Death occurs after a prolonged illness which requires multiple  
19 lengthy hospitalizations. The cost of such care is not precisely  
20 known, but I estimate it to be between \$60,000 and \$70,000 per  
21 patient from the time of diagnosis to death.

22 It is tempting to predict that with widespread publicity  
23 and public education concerning AIDS earlier diagnoses can be  
24 made at a time when treatment is more effective. However, this  
25 has not been the case. In fact, at the present time there is no  
26 effective therapy for the underlying immune deficiency and our



1 treatment of the associated problems has not progressed  
2 significantly during the past three years. AIDS patients today,  
3 as they did three years ago, face a relentlessly progressing  
4 course in all but a small fraction of cases.

5 I declare under penalty of perjury under the laws of the  
6 State of California that the foregoing is true and correct

7 Executed on October 8, 1984, at San Francisco,  
8 California.

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11 PAUL VOLBERDING, M.D.

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# CURRICULUM VITAE

Name

A. Paul A. Volberding, M.D.

Date & Place of  
Birth

September 26, 1949; Rochester, Minnesota

Office Address

San Francisco General Hospital  
Building 80, Ward 86  
San Francisco, California 94110

Home Address

826 Alvarado Street  
San Francisco, California 94114

Marital Status

Married, Mary M. Cooke, M.D.  
Two children: Alexander, born 6/15/81  
Benjamin, born 4/14/84

Education and  
Degrees

1971 - University of Chicago, A.B.  
1975 - University of Minnesota, M.D.  
1978 - American Board of Internal Medicine  
1981 - Medical Oncology

Present Position

Assistant Professor of Medicine  
University of California, San Francisco

Chief, Medical Oncology  
San Francisco General Hospital

Other Professional  
Activities

Co-director, Kaposi's Sarcoma Clinic  
University of California, San Francisco

Awards

1973 - The Livermore Award for Leukemia  
Research of the Minnesota Medical  
Foundation  
1980 - The Bank of America, Gianinni Foundation  
Fellowship  
1980 - Lalor Foundation Fellowship  
1983 - American Cancer Society, Junior  
Clinical Faculty Fellow

Membership in  
Professional  
Organizations

1980 - Present - American Association for  
the Advancement of Science  
1982 - American Society of Clinical Oncology  
1982 - American College of Physicians  
1982 - Northern California Oncology Group  
1982 - American Cancer Society/San Francisco  
Board of Directors  
Member, Professional Education Committee  
1982 - AIDS & KS Research and Education  
Foundation  
Board of Directors

Exhibit 1



Committees

Chairman, Cancer Committee, SFGH  
Ethics Committee, UCSF  
Schedule and Space Committee, UCSF

Training and  
Experience

1968-1971	Laboratory Assistant in the virology laboratory of Dr. Marc Beem, University of Chicago.
1970	University of Chicago, laboratory of Dr. Marc Beem, National Science Foundation summer research program. Conducted studies on the reversibility of neutralization of rhinoviruses.
1971-1975	University of Minnesota School of Medicine, research conducted with Dr. Charles Moldow on avian type C virus receptors.
1975-1978	Medicine Intern, First and second year internal medicine resident, University of Utah Medical Center, Salt Lake City, under the direction of Dr. George Cartwright.
1978-1979	First year fellow in Hematology/Oncology, University of California, San Francisco, under Dr. Stephen Shohet, clinical research conducted with Dr. Michael Friedman.
1979-1981	Fellow in Hematology/Oncology, University of California, San Francisco. Research conducted in the laboratory of Dr. Jay A. Levy studying mechanisms controlling infection xenotropic type C viruses.  Continued clinical research with Dr. Michael Friedman on the therapy of hepatic tumors.
1981-Present	Assistant Professor of Medicine, University of California, San Francisco

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#### ABSTRACTS

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September 26, 1984



1                                    DECLARATION OF JOHN ZIEGLER, M.D.

2            I, John Ziegler, M.D., do hereby make the following  
3 declaration in support of the Application for a Temporary  
4 Restraining Order and Order to Show Cause Re: Preliminary  
5 Injunction.

6            1.        I attended Cornell University Medical College and  
7 received my M.D. degree from that institution in 1964. Following  
8 graduation, I specialized in Internal Medicine with a  
9 subspecialty in Medical Oncology, and have board certification in  
10 both specialties. I was at the National Cancer Institute from  
11 1966 until 1981, when I joined the Veteran's Administration  
12 Medical Center. At the present time, I am Associate Chief of  
13 Staff for Education at the San Francisco Veteran's Administration  
14 Medical Center and Professor of Medicine at the University of  
15 California School of Medicine in San Francisco ("UCSF").  
16 Although I am employed by the Veteran's Administration and by  
17 UCSF, I am testifying in my individual capacity. The views  
18 expressed herein are my own and do not represent official views  
19 of either the Veteran's Administration Hospital or UCSF.

20           2.        I have been involved in cancer research for the past  
21 ten years, with an emphasis in immunology and viral-induced  
22 cancers. For the past three years, I have been an active  
23 researcher in San Francisco on Acquired Immune Deficiency  
24 Syndrome ("AIDS") and a co-principal investigator in the National  
25 Cancer Institute's grant for AIDS research at UCSF. Most  
26 recently, I identified the malignant lymphoma, non-Hodgkins

1 lymphoma, as a component of AIDS and the AIDS-related complex. I  
2 have written at least twelve papers and book chapters on AIDS and  
3 AIDS-related subjects. I regularly attend lectures and  
4 conferences in the field, and have read all the literature on  
5 AIDS since the epidemic began in 1981. A copy of my curriculum  
6 vitae is attached hereto as Exhibit 1 and incorporated herein by  
7 reference as though fully set forth.

8 3. During my tenure at the National Cancer Institute, I  
9 became known as an international expert on Kaposi's Sarcoma  
10 ("KS"), which is the major neoplasm that indicates the presence  
11 of AIDS. When I arrived in San Francisco in the summer of 1981,  
12 the AIDS epidemic had just been announced by the Center for  
13 Disease Control ("CDC") in Atlanta, and the first few patients  
14 were being seen at UCSF. Dr. Marcus Conant, Dr. Paul Volberding  
15 and I formed a KS Clinic there. We began to treat and study  
16 these patients at the clinic, and quickly learned that this was a  
17 disease striking homosexual men in their mid-30's and that most  
18 of the victims had engaged in promiscuous sexual activity for the  
19 ten years prior to their diagnosis.

20 4. We now know that AIDS is caused by a retrovirus,  
21 which is a small virus with a particle of RNA that determines its  
22 replication. It is called a retrovirus because RNA has to be  
23 transcribed into DNA and then back into RNA retrograde in order  
24 to ensure the propagation of a virus. That is, the virus enters  
25 the cell and instructs the cell to replicate it through a special

26 / / /



1 enzyme called reverse transcriptase. This enzyme helps the  
2 genome to understand the virus genome and replicate it within the  
3 cell. These retroviruses are known to be spread by blood and  
4 blood products and quite possibly by other bodily secretions.  
5 All of the epidemiological evidence indicates that the AIDS virus  
6 is transmitted sexually.

7 5. Based on our clinical experience, the natural history  
8 of AIDS is now clear. When the disease is first diagnosed,  
9 patients have either KS or one of the opportunistic infections.  
10 Those with an opportunistic infection have a mortality rate of  
11 approximately 80 to 90 percent; those with KS have a mortality  
12 rate in the 40 percent range. The natural course of the disease  
13 is one of an inexorable and progressive failure of the immune  
14 system, leading to the acquisition of fatal malignancies and  
15 opportunistic infections. We are just in the middle of the  
16 epidemic. Therefore, we do not know how many of the AIDS  
17 patients who are currently living will die. Although we cannot  
18 state categorically that all victims of AIDS will ultimately die,  
19 we do know that no patient with AIDS has ever been cured and that  
20 no patient with the prodromal symptoms of lymphadenopathy and  
21 other signs has totally regressed to normalcy. So at present, we  
22 view this as a incurable and probably ultimately fatal disease.  
23 There is no specific treatment for AIDS. The treatments that are  
24 available are aimed only at the manifestations of AIDS. While some  
25 of the infections can be controlled temporarily, the underlying  
26 immunodepression makes the victim susceptible to additional



1 infections and recurrence is the rule.

2         6.       Since 1981, I have personally seen and treated at  
3 least 100 AIDS patients, and have interviewed them extensively.  
4 My experience is that those individuals who contract AIDS have  
5 engaged, for the most part, in very promiscuous sexual activity.  
6 Virtually all the AIDS patients I have interviewed had been to  
7 bathhouses and similar facilities in San Francisco at some time  
8 in the recent past. The epidemiological evidence for this  
9 disease, particularly in the homosexual community, points very  
10 convincingly to the risk of spread of the AIDS virus among  
11 individuals who have multiple sex partners. AIDS appears to have  
12 a propensity to afflict both those persons who engage in rectal  
13 intercourse and are receptive partners, as well as those persons  
14 who engage in a practice commonly known as "fisting."  
15 Undoubtedly there are a multitude of other sexual practices which  
16 increase the risk but because these may be obscured by those  
17 sexual practices we know increase the risk, it is impossible to  
18 isolate them as specific risk factors. My personal experience  
19 has been that the risk of developing AIDS is directly  
20 proportional to the number of sexual partners the victim has.

21         7.       Over the years, I have obtained a great deal of  
22 information from my patients with respect to the frequency and  
23 type of practices that they engage in at the bathhouses. I know  
24 that bathhouses have dark rooms with so-called "glory holes" and  
25 other areas where a great deal of anonymous sex goes on.  
26 Virtually all imaginable sexual practices take place. Depending

1 on his stamina, an individual can encounter eight to ten partners  
2 in a single evening. Thus, bathhouses are establishments where  
3 an individual can go to shower and engage in sexual activities  
4 with multiple partners in relative anonymity over a short period  
5 of time and where these practices are encouraged and  
6 facilitated. It is this setting that would, in my opinion, be  
7 the most conducive to the spread of the AIDS virus.

8 8. Based upon my personal experience and the literature  
9 in the field, I have formed the opinion that AIDS is a lethal  
10 virus being spread amongst the homosexual community, that it is  
11 on the increase in San Francisco and has reached epidemic  
12 proportions. Bathhouses, sex clubs, and various other  
13 establishments within the City that promote multiple anonymous  
14 sex among homosexual patrons are closely linked with the major  
15 risk factors of the spread of the AIDS virus. It appears to me  
16 that these institutions, by their very nature, are in fact  
17 propagating the virus by encouraging its spread within and  
18 amongst the homosexual community and perhaps are even spreading  
19 it out into the general community.

20 I declare under penalty of perjury under the laws of the  
21 State of California that the foregoing is true and correct.

22 Executed on October 7, 1984, at San Francisco,  
23 California.

24  
25   
26 JOHN ZIEGLER, M.D.



## CURRICULUM VITAE

NAME: John L. Ziegler, M.D.

DATE & PLACE OF BIRTH: October 28, 1938, New York, New York

MARITAL STATUS: Married, six children

EDUCATION:

1956 - 1960	Amherst College, Amherst, Massachusetts, B.A. (English)
1960 - 1964	Cornell University Medical College, New York, N.Y., (M.D.)

EMPLOYMENT AND APPOINTMENTS:

1964 - 1966	Intern and Assistant Resident, Second (Cornell) Medical Division, Bellevue Hospital, New York, N.Y. (Fellow, Department of Medicine, Cornell University Medical College)
1966 - 1967	Clinical Associate, Medicine Branch, National Cancer Institute, and Admitting Officer, National Cancer Institute
1967 - 1972	Director, Uganda Cancer Institute, Makerere University Medical School; Senior Investigator, Medicine Branch, National Cancer Institute
1973 - 1975	Chief, Pediatric Oncology Branch, Division of Cancer Treatment, National Cancer Institute
1975 - 1980	Deputy Clinical Director, National Cancer Institute and Director, Clinical Oncology Program, Division of Cancer Treatment, National Cancer Institute
1980 - 1981	Editor-in-Chief, Journal of the National Cancer Institute, National Cancer Institute
1981 -	Associate Chief of Staff for Education, Veterans Administration Medical Center, San Francisco, California; Professor of Medicine, School of Medicine, University of California, San Francisco

CERTIFICATION:

Diplomate, American Board of Medical Examiners (1964)

Qualified, American Board of Internal Medicine (October 1970)

Diplomate in Internal Medicine (October 1973)

Diplomate in the Subspecialty of Oncology, American Board of Internal Medicine (October 1973)

*Exhibit 1*



**PROFESSIONAL SOCIETIES:**

American Association for Cancer Research 1968-  
American Federation of Clinical Research 1972-  
American Society of Clinical Investigation 1974-  
American Society of Clinical Oncology 1968-  
American Society of Hematology 1968-  
Association of Physicians of East Africa 1967-72  
Association of Surgeons of East Africa (Honorary) 1967-72  
Uganda Medical Association 1967-72  
Council of Biology Editors 1980-81  
Western Association of Physicians 1983-

**MEMBERSHIP:**

American Cancer Society's Scientific Advisory Committee for Clinical  
Investigations (Immunology and Immunotherapy) 1974-1977; (Chemotherapy)  
1982-1985, Chairman  
Immunotherapy Committee, Tumor Immunology, National Cancer Institute  
1973-1975  
Medical Board, Clinical Center, National Institutes of Health 1975-1977  
Clinical Research Committee, National Cancer Institute (Chairman) 1975-1980  
Editorial Board, Cancer Treatment Reports 1977-1979  
American Joint Committee for Cancer Staging and End Results Reporting  
1976-1980  
Consultant, SEER Program, Division of Cancer Cause and Prevention, NCI 1977-79  
Consultant, National Bladder Cancer Task Force 1978-80  
Consultant, Institute of Medicine, National Academy of Sciences (Workshop on  
Research in Developing Countries) 1979  
Admissions Committee, USUHS, Appointment by Surgeon General, USPHS  
1980-1981  
Executive Committee, Northern California Oncology Group

**ACADEMIC APPOINTMENTS:**

1967-1972	Honorary Lecturer in Medicine, Makerere University Medical School, and Honorary Senior Registrar, Mulago Hospital, Kampala, Uganda; Lecturer in Surgery, Harvard College; Clinical Associate Professor, Cornell Medical College
1976-1978	Assoc. Prof. of Medicine, George Washington Univ. Med. School
1979-1981	Assoc. Prof. of Medicine, Georgetown Univ. School of Medicine
1980-1981	Prof. of Medicine, Uniformed Services Univ. of the Health Sciences

**MILITARY SERVICE:**

1966-1981	Medical Director, U.S. Public Health Service (Presently in Inactive Reserve)
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**AWARDS:**

U.S.P.H.S. Commendation Medal, July 1969  
Albert and Mary Lasker Award, November 1972  
Heath Award, M.D. Anderson Hospital, November 1983

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3. Kiryabwire, J.W.M., Lewis, M.G., Ziegler, J.L. and Loeffler, I.: Malignant melanoma in Uganda. East Afr. Med. J. 45: 498-507, 1968.
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### Abstracts and Correspondence

Dr. Ziegler has published over 100 scientific abstracts and letters to the editor.

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1           3.     As Chief of Medical Services at SFGH, I am  
2 responsible for the care of all patients who come to that  
3 facility and have under my direct supervision approximately fifty  
4 full-time faculty members, one hundred house staff, and thirty  
5 post graduate fellows in various medical specialties. In  
6 addition to doing research on numerous bacterial infections, I  
7 have also been directly involved in the care of patients with  
8 viral and bacterial infections. I have also been involved with  
9 epidemics of meningococcal meningitis, microplasma pneumonia, and  
10 influenza.

11           4.     I have been extensively involved with AIDS, defined  
12 herein to refer to patients meeting the criteria of the Center  
13 for Disease Control ("CDC") in Atlanta (which includes the  
14 presence of diseases considered diagnostic of an underlying  
15 immunity deficiency such as Kaposi's Sarcoma, central nervous  
16 system lymphoma, or infections such as pneumocystis pneumonia).  
17 I saw my first case of AIDS in the spring of 1982. Since that  
18 time, I have been directly involved in strategies for caring for  
19 AIDS patients, developing infectious control measures, and  
20 administering research and patient care funds.

21           The AIDS ward at SFGH is under my direction, along with  
22 Drs. Volberding and Wolfsey. I direct the house staff in the  
23 care of AIDS patients, and am currently involved in numerous  
24 studies on the various expressions of the disease and its  
25 diagnostic and therapeutic oddities. I personally have seen and  
26 / / /

1 participated in the care of approximately 100 AIDS patients at  
2 SFGH.

3 As Chairman of UCSF's AIDS task force, I have been  
4 intensively involved in infection control measures dealing with  
5 this patient population. Our decisions regarding infectious  
6 control were published in September, 1983 in the New England  
7 Journal of Medicine and have been adapted worldwide. I am  
8 currently aiding in studies at SFGH dealing with the risk of AIDS  
9 to health care workers. An additional assignment has been my  
10 appointment as Chairman of a UCSF task force whose responsibility  
11 is to dispense approximately 3 and a half million dollars of  
12 state-directed funds for AIDS research to schools related to the  
13 University of California. I have also lectured widely in the  
14 United States and Europe on the field of AIDS and next week am  
15 running a symposium in Washington, D.C. with the four most  
16 prominent experts in the field.

17 5. AIDS is a disease that is characterized by the  
18 elimination and destruction of T-cells, which are responsible for  
19 the cellular immune response through which the body responds to  
20 malignancies and various pathogens. Destruction of these cells  
21 leads to severe immunological impairment, which results in the  
22 development of various malignancies and incredibly severe  
23 opportunistic infections. An antibody directed against a  
24 retrovirus known as HTLVIII, or LAV, has been identified and is  
25 present in the majority of patients with AIDS. This virus is  
26 labile and easily killed by physical means, such as soap and heat.



1 To my mind, the most amazing aspect of this disease has  
2 been the fact that it has remained within certain high-risk  
3 groups, namely: homosexual males, intravenous drug abusers,  
4 individuals who have received blood or blood products, persons  
5 who have had direct contact with equatorial Africa or Haiti,  
6 sexual partners of any of the other high-risk groups and,  
7 finally, offspring of patients with AIDS. All evidence suggests  
8 that it is very difficult to transmit this virus from person to  
9 person unless there is direct sexual contact or an exchange of  
10 blood products. This view is supported by the fact that, to  
11 date, not a single health care worker or person directly involved  
12 in the care of AIDS patients and who is not a member of one of  
13 the high-risk groups noted above has developed the disease.  
14 Early studies also indicate that these health care workers do not  
15 have antibody to the virus.

16 We have evidence that the virus may have sprung out of  
17 equatorial Africa and has been there for a period of time. In my  
18 opinion, the reason that the disease did not spread rapidly at  
19 that time and place is because there was no "multiplier." It now  
20 appears clear that promiscuous homosexual sex in the United  
21 States has been the key multiplier, in addition to the exchanging  
22 of needles in the intravenous drug-abusing population.

23 6. Data showing that the AIDS disease has spread widely  
24 in the gay community have come from a number of different  
25 cities. The most impressive data comes from San Francisco, where  
26 the CDC and San Francisco Public Health Department co-sponsored a

1 program beginning in 1978 and aimed at determining the natural  
2 history and protectiveness of the hepatitis B vaccine. They  
3 originally enlisted approximately 6,800 predominantly gay males,  
4 from which they recently selected 770 for further study. Blood  
5 sera obtained from these individuals in 1978 and retrospectively  
6 tested for antibody to the AIDS virus shows that between 1978 and  
7 1980, less than 6 percent were positive for the AIDS virus. By  
8 1984, using a test that does not pick up all the positives, the  
9 percentage had increased to 65 percent. The actual percentage is  
10 more likely in the 70-80 percent range. Whether the data from  
11 this representative patient population can be extrapolated into  
12 the rest of San Francisco's gay population is unknown, but the  
13 data certainly indicates that a large number of the gay  
14 population in fact has come into contact with the AIDS virus.

15 Testing of control groups of females and heterosexual males  
16 has shown that the incidence of positive antibody tests is less  
17 than 1 percent. This includes studies performed both at the CDC  
18 and on blood donors. Recent studies done at UCSF by Dr. Jay Levy  
19 supports the initial observation that antibodies to this  
20 retrovirus are essentially absent from the straight population  
21 and non high-risk groups. It is also of interest that studies in  
22 New York City show that the antibody prevalence to this AIDS  
23 agent in intravenous drug abusers approaches 60 to 80 percent.

24 7. As I have previously indicated, transmission of the  
25 virus appears to be quite difficult, if not impossible, by casual  
26 contact and to the best of our knowledge is transmitted through



1 the exchange of infected body secretions. The best bet at the  
2 present time is that the virus is found in high concentrations in  
3 semen and that the exchange of semen between individuals  
4 represents the most likely and most important mode of  
5 transmission. There is also strong data suggesting that the  
6 exchange of infected blood from one individual to another is also  
7 an important mode of transmission. But of equal interest is the  
8 fact that, to date, patients who have received accidental needle  
9 sticks from patients with AIDS have not developed the antibody  
10 and therefore have not been infected by that mode. All this data  
11 suggests that it takes a fairly intensive exposure that may be  
12 related to dose of either semen or blood products. The virus has  
13 also been shown to have been transmitted in utero from infected  
14 mothers to their offspring. However, other children in the  
15 family have not become infected, so it appears that close contact  
16 between mother and child is not now associated with transmission.

17 8. In San Francisco, the disease has been found almost  
18 exclusively in the gay community. The most common mode of  
19 transmission is most likely due to rectal intercourse. We cannot  
20 say that it is not transmitted through oral intercourse, but  
21 believe that the likelihood of the disease being spread by  
22 kissing is unlikely. The data strongly suggests that the number  
23 of different sexual contacts is a dominant risk factor in the  
24 spread of this disease and undoubtedly represents the  
25 "multiplier" that was required to initiate the epidemic.  
26 However, there is also data suggesting that vaginal intercourse

1 may also transmit the disease in that there have been female  
2 sexual partners of bisexual males who have acquired the disease.  
3 Also, in equatorial Africa, female prostitution is apparently one  
4 of the leading risk factors. Still unclear is whether the  
5 transmission of the virus requires a break in the mucosal  
6 barriers of the mouth or the rectum in order to transmit the  
7 disease. However, it is likely that the spread would be  
8 facilitated by traumatic sexual practices that lead to bleeding,  
9 such as "fisting" or other traumatic anal intercourse.

10 9. The aspect of the AIDS epidemic that has most  
11 affected me personally has been the impact of the disease on San  
12 Francisco General Hospital. At present, the disease is doubling  
13 every eight months, and all evidence suggests that it will  
14 continue along these lines indefinitely. About a year ago, our  
15 AIDS ward opened at SFGH with twelve beds, which was ample to  
16 handle the patient load at the time. Yesterday we had  
17 twenty-eight patients in the hospital. At this rate, if measures  
18 are not taken to distribute this patient population, a year from  
19 now we will have nearly 100 patients in the hospital and would  
20 have reached the point where our current services and facilities  
21 would be overloaded. Within the next three years, San Francisco  
22 will be facing an incredibly severe problem that will become  
23 increasingly obvious in terms of caring for this patient  
24 population. The City will also incur an enormous financial loss  
25 because, at current rates, each patient's care will cost  
26 approximately \$100,000 from initial diagnosis to death. If, as



1 we suspect, a high percentage of the gay community is already  
2 infected with the AIDS virus and if this equates itself with  
3 significant disease, we can expect to have as many as 20,000 or  
4 30,000 patients in the City before the epidemic reaches its  
5 peak. The impact on the San Francisco General Hospital is such  
6 that we can predict that within several months to a year, we will  
7 be unable to fulfill our mission and commitment to the City's  
8 non-AIDS population.

9 10. I have been asked, as an expert in the field, what I  
10 would recommend as a strategy for the prevention of AIDS. My  
11 response is that since it is unlikely the disease would be spread  
12 in a community that was not heavily involved in multiple sexual  
13 encounters, the best strategy would be to find some way to stop  
14 the sexual practices that transmit the disease. Thus, to the  
15 extent education would be effective in reducing this behavior,  
16 the expected end result would be a reduction in the spread of the  
17 disease. Another approach would be to eliminate places or  
18 establishments where these sexual practices are facilitated --  
19 where the ease of having anonymous sex and finding multiple  
20 sexual partners is increased. Therefore, it has been my feeling  
21 for the past year and a half that a positive move by the San  
22 Francisco Department of Public Health Department along these  
23 lines would have a significant impact and effect on the spread of  
24 AIDS.

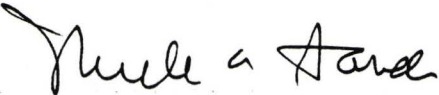
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1 In my judgment, the data currently available allows us to  
2 state categorically that the anonymous and multiple sexual  
3 encounters encouraged, fostered, facilitated and promoted by  
4 bathhouses, sex clubs, and similar facilities in San Francisco  
5 has a strong and dramatic effect on the spread of AIDS. I  
6 therefore believe it is the obligation of the San Francisco  
7 Department of Public Health to make a strong and definite  
8 statement regarding the control of this behavior and to close any  
9 facilities under its jurisdiction where such activities are being  
10 carried out. Physicians and public health officials have a  
11 special responsibility to examine the data and make a strong  
12 statement regarding this serious epidemic.

13 I declare under penalty of perjury under the laws of the  
14 State of California that the foregoing is true and correct.

15 Executed on October 6, 1984, at San Francisco,  
16 California.

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MERLE SANDE, M.D.  
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CURRICULUM VITAE

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1976-1978 Vice Chairman, Department of Medicine, University of Virginia  
School of Medicine, Charlottesville, Virginia

1978-1980 Professor of Internal Medicine, University of Virginia School  
of Medicine, Division of Infectious Diseases, Charlottesville,  
Virginia

1979 Acting Chairman, Department of Medicine, University of Virginia  
School of Medicine, Charlottesville, Virginia

1980- Present Professor, Department of Medicine, University of California  
School of Medicine, San Francisco, California

1980- Present Vice Chairman, Department of Medicine, University of California  
School of Medicine, San Francisco, California

1980- Present Chief of Medical Services, San Francisco General Hospital,  
San Francisco, California

*Exhibit 1*

MILITARY SERVICE:

1969-1971 Captain, U.S. Air Force, Wilford Hall, Lackland Air Force Base,  
San Antonio, Texas

BOARD CERTIFICATION:

1971 American Board of Internal Medicine  
1974 Subspecialty of Infectious Diseases

EDITORIAL BOARDS:

Antimicrobial Agents and Chemotherapy  
Infection and Immunity

PROFESSIONAL SOCIETY MEMBERSHIPS AND HONORS:

Albemarle County Medical Society  
Alpha Omega Alpha  
American Association for the Advancement of Science  
American College of Physicians, Fellow  
Virginia Chapter, ACP, Secretary/Treasurer, 1975-1979  
American Federation for Clinical Research  
American Society for Clinical Investigation  
American Society for Microbiology  
American Thoracic Society  
Association of American Physicians  
Infectious Diseases Society of America  
Medical Examiner, City of Charlottesville, County of Albemarle, Virginia  
Phi Beta Kappa  
Phi Kappa Phi  
Society of Experimental Biology and Medicine  
Southern Society for Clinical Investigation  
Virginia Thoracic Society  
Western Society for Clinical Research  
Western Association of Physicians

COMMITTEES:

Bowman Foundation, University of Virginia, Charlottesville, Virginia  
Chairman, 1978-present  
Interscience Conference on Antimicrobial Agents and Chemotherapy,  
Program Committee, 1981-present  
Infectious Diseases Subcommittee for the Medical Knowledge Self-  
Assessment Program VI, American College of Physicians  
The National Foundation for Infectious Diseases, Board of Directors  
The United States Pharmacopeia, Drug Information Advisory Panel  
University of California, San Francisco Task Force on AIDS, Chairman  
University of California Systemwide Task Force on AIDS, Chairman  
Veterans Administration Central Office, Career Development Committee, 1984  
Virginia Partners of the Americas, Executive Committee, 1976-1979



ORIGINAL WORK

1. Kilbourn E, Christenson W, Sande M: Antibody response in man to influenza virus neuramidase following influenza. J. Virol., 2,761-762, 1968.
2. Barondess J, Sande MA: Some changing aspects of aortic regurgitation: an autopsy study. Trans. Am. Clin. Clim. Assoc., 80,23-36, 1968; Arch. Intern. Med., 124,600-605, 1969.
3. Sande MA, Levison M, Lucas D, Kaye D: Bacteremia associated with cardiac catheterization. New Engl. J. Med., 281,1104-1106, 1969.
4. Sande MA, Alonso D, Smith J, Hook E: Left atrial tumor presenting with hemoptysis and pulmonary infiltrates. Am. Rev. Respir. Dis., 102,258-263, 1970.
5. Sande MA, Kaye D: Evaluation of methodology for determining serum and urine antibacterial activity in subjects receiving colistimethate sodium. Clin. Pharm. Ther., 11,873-882, 1970.
6. Sande MA, Johnson W, Hook E, Kaye D: Sustained bacteremia in patients with prosthetic cardiac valves. New Engl. J. Med., 286,1067-1070, 1972.
7. Shafiq S, Sande MA, Curruthers R, Killip T, Milhorat A: Skeletal muscle in idiopathic cardiomyopathy. J. Neurol. Sci., 15,303-320, 1972.
8. Merrill C, Gwaltney J, Hendley J, Sande MA: Rapid identification of pneumococci: Gram stain vs. the Quellung reaction. New Engl. J. Med., 288,510-512, 1973.
9. Sande MA, Overton JW: In vivo antagonism between gentamicin and chloramphenicol in neutropenic mice. J. Infect. Dis., 128,247-250, 1973.
10. Rein MF, Westervelt FB, Sande MA: Pharmacodynamics of cefazolin in the presence of normal and impaired renal function. Antimicrob. Agents Chemother., 4,366-371, 1973.
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13. Rein MF, Sande MA: Osteomyelitis caused by concurrent infection with Mycobacterium tuberculosis and Blastomyces dermatitidis. Am. Rev. Respir. Dis., 109,286-289, 1974.
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DECLARATION OF WILLIAM LAWRENCE DREW, M.D.

1  
2 I, William Lawrence Drew, M.D., do hereby make the  
3 following declaration in support of the Application for a  
4 Temporary Restraining Order and Order to Show Cause Re:  
5 Preliminary Injunction.

6 1. I received my M.D. Degree in 1962 from Jefferson  
7 Medical College, and then did a medical internship at that  
8 institution. Three years later I received a Ph.D. from Jefferson  
9 in experimental virology; my thesis area was the herpes simplex  
10 virus and the action of drugs against the virus. After that, I  
11 came to the University of California at San Francisco ("UCSF"),  
12 where I took a two-year medical residency, and then went to  
13 Seattle, where I had a year of clinical microbiology. I then  
14 returned to the Bay area and became involved in the field of  
15 viral and infectious diseases. See my curriculum vitae, attached  
16 as Exhibit 1 and incorporated by reference.

17 2. I have been at Mount Zion Hospital in San Francisco  
18 for the past fifteen years, and at the present time am in charge  
19 of the diagnostic virology laboratory and the infectious disease  
20 unit there. In that capacity, I am involved both clinically and  
21 in the laboratory with a broad range of patients with viral  
22 diseases. Over the past three years, I have also become involved  
23 in studying the possible etiology of Acquired Immune Deficiency  
24 Syndrome ("AIDS") and the role of viruses in that disease. In  
25 particular, I have been investigating whether a virus called  
26 cytomegaliovirus (CMV) plays any contributing role. In addition



1 to my clinical studies, I am involved with the care of AIDS  
2 patients, especially in managing the infectious disease  
3 complications that they have.

4 3. I became particularly interested in the viral  
5 etiology of AIDS because, prior to the start of the AIDS  
6 epidemic, I had initiated a study at the venereal disease clinic  
7 in San Francisco to determine whether CMV was sexually  
8 transmitted. When we compared the prevalence of CMV in  
9 homosexual men at the venereal disease clinic to that of  
10 heterosexual men at the same clinic, we documented quite clearly  
11 that CMV was highly prevalent in homosexual men. A logical  
12 extension of that study was to investigate whether CMV might have  
13 a role in the evolution of AIDS.

14 4. We received grant support from the National Institute  
15 of Health, the State of California, and other sources to  
16 determine what role CMV might have in the genesis of AIDS. My  
17 current view is that CMV is a co-factor in the evolution of the  
18 disease in that it may cause immune suppression which permits  
19 another virus (for example HTLV, the T cell leukemia virus) to  
20 take root and multiply at a greater degree than it might in an  
21 otherwise normal host. We have an ongoing study where we are  
22 studying a group of some thirty to forty homosexual men who  
23 initially were not infected with CMV and follow them on a monthly  
24 basis to determine exactly when they get infected with CMV and  
25 what it does to their immune system. In the course of this  
26 study, we have processed literally hundreds and hundreds of  
blood, semen and urine samples. We culture the virus and

1 document the process of antibody in the patient's blood. An  
2 antibody is a substance in the blood that is formed in reaction  
3 to a foreign material such as a virus, and is a sign that at some  
4 time in the past an infection has taken place.

5 5. What causes AIDS is a complicated question. There is  
6 a strong body of evidence that HTLVIII is likely to be the  
7 primary cause because of the dramatic difference in antibody  
8 prevalence in the serum of homosexual men compared with  
9 controls. On August 24, 1984, Science magazine published an  
10 article by Dr. Jay Levy of San Francisco documenting that even  
11 among homosexual men who are asymptomatic of AIDS, about 57  
12 percent and possibly even more have antibody to this virus,  
13 whereas in healthy heterosexual men the prevalence of antibody is  
14 zero. This is a very striking difference. A copy of Dr. Levy's  
15 article is attached hereto as Exhibit 2 and is incorporated  
16 herein by reference as though fully set forth. Also, in some of  
17 the transfusion-related AIDS cases, there is evidence that the  
18 virus is present in the blood of the donor and was subsequently  
19 present in the blood of the recipient, clearly suggesting that  
20 there was a transmission.

21 We know that individuals that get sick with a certain  
22 disease are only the tip of the iceberg of those who get infected  
23 with the causal agent. But in the case of AIDS, I believe that  
24 it is more than that. Based on the fact that there are  
25 individuals who experience viral infection with the HTLV agent  
26 but do not go on to get AIDS, my view is that there is no one



1 single virus. Rather, there are co-factor entities that make a  
2 contribution, CMV being one of them. The co-factor concept is  
3 that some other immune suppressive agent is necessary in order  
4 for the HTLV virus, for example, to fully express its immune  
5 disease-producing potential. There is laboratory evidence from  
6 France suggesting that for the HTLV virus to fully express  
7 itself, some stimulation or abnormality of lymphocytes (CMV, for  
8 example) is required. Thus, although the evidence is certainly  
9 mounting that HTLV is a very major, possibly the single cause, of  
10 this AIDS epidemic, I think there are reasons to suspect that it  
11 is a co-factor situation with repeated exposures causing  
12 increased risk of acquiring clinical disease.

13 6. In our CMV studies at the San Francisco venereal  
14 disease clinic, we found that 99 percent of the individuals who  
15 were anal receptive had antibody showing they had been infected  
16 with the virus whereas perhaps 60 to 70 percent of individuals  
17 who had not been anal receptive had been infected. There is,  
18 therefore, good evidence that being anal receptive is a high-risk  
19 factor for acquiring CMV, although exposure to other secretions  
20 such as saliva and semen are also major risk factors. Though I  
21 am not aware of data to indicate that HTLV is in semen, I suspect  
22 that it is.

23 7. The implication of repeated sexual exposure is, I  
24 think, very important. In our studies, we have documented that  
25 up to 80 percent of homosexual men sampled will have CMV in their  
26 semen at one time or another. In some instances, the semen is

1 positive every time we take samples. When an anal receptive  
2 individual is re-exposed to the virus, there is a further  
3 immunologic challenge. In the four AIDS patients we have  
4 autopsied, we documented that they had more than one strain of  
5 CMV in their tissues. What I suspect happens is that with each  
6 exposure, a slightly different strain of the virus affects the  
7 lymphocytes of that recipient. Each challenge cumulatively  
8 destroys the lymphocytes of those patients, or certainly sets the  
9 groundwork for invasion by another virus such as HTLV. Thus,  
10 each re-exposure to CMV, and quite possibly to HTLV, is capable  
11 of causing an immune abnormality and a person can conceivably get  
12 a new strain of virus with each and every new exposure or with  
13 repetitive exposures.

14 8. Exposure to semen, especially through the rectum,  
15 since it is traumatized and lacks any protective mechanism for  
16 dealing with a virus inoculation, but also through the pharynx,  
17 is a risk factor in the transmission of the CMV virus.  
18 Similarly, exposure to semen via sexual practices such as anal  
19 receptive intercourse has been shown to be a risk factor for  
20 acquiring infection with HTLV-III virus. Since these viruses are  
21 suspected to be co-factors in AIDS, it is obvious to me that  
22 reducing the exposure to secretions containing them has to be  
23 beneficial in the control of this AIDS epidemic.


24 9. My personal knowledge of bathhouses is solely from  
25 the reports of patients and other homosexual men with whom I am  
26 conversant. They have told me of the so-called "glory holes,"



1 through which there is an exchange of semen by anonymous sexual  
2 contact, and of darkened rooms where an individual unknown to the  
3 entrant is available for sexual experience. I have certainly  
4 been apprised of the multiple opportunities for exchange of semen  
5 and for exchange of rectal and oral secretions. While it is  
6 possible to get the message across through educational campaigns  
7 that these sexual activities can transmit the AIDS virus, for  
8 many months I have felt and said publicly that I believed the  
9 bathhouses and similar commercial establishments should be  
10 closed. Closure is certainly not the total answer, but anything  
11 that facilitates the transfer of these viruses should be  
12 eliminated if possible.

13 I declare under penalty of perjury under the laws of the  
14 State of California that the foregoing is true and correct.

15 Executed on October 9, 1984, at San Francisco, California.

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18 WILLIAM LAWRENCE DREW, M.D.  
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CURRICULUM VITAE

WILLIAM LAWRENCE DREW

BORN: August 31, 1936, New York, New York

MARRIED: Anne Sheedy, Pittsburgh, Pennsylvania, May 29, 1965

CHILDREN: Catharine Anne, May 11, 1966; Kristin Marie, September 21, 1967; John Cray, March 10, 1971; Margaret Patterson, December 19, 1972; Anne Elizabeth, January 4, 1982.

EDUCATION: Regis High School, 55 East 84th St., New York, NY 1950-54  
Holy Cross College, Worcester, Mass. - B.A. 1954-58  
Jefferson Medical College, Philadelphia, PA - M.D. 1958-62  
Jefferson Medical College, Philadelphia, PA  
Experimental Pathology (Virology) - Ph.D. 1963-66

TRAINING: Straight Medical Internship  
Jefferson Medical College Hospital 1962-63  
  
Assistant Residency in Medicine  
University of California Hospital,  
San Francisco, CA 1966-68  
  
N.I.H. Fellow in Clinical Microbiology  
University of Washington, Seattle, Washington 1968-69

BOARD CERTIFICATION:  
American Board of Internal Medicine December 4, 1970  
Infectious Disease Subspecialty June 1980  
American Board of Medical Microbiology May 4, 1972  
Recertification ABMM July 1, 1983

PRESENT: Mount Zion Hospital, Director of Clinical Microbiology  
and Virology Laboratory and Associate Chief, Medicine;  
In charge of Infectious Diseases. 1969 to  
present  
  
Associate Clinical Professor of Medicine and Jan. 1977  
Laboratory Medicine - University of California, to present  
School of Medicine, San Francisco, CA  
  
Director, Biskind Pathology Research Laboratory 1980 to  
present

CONSULTANT: Veterans Administration Hospital, San Francisco, CA

EDITORIAL BOARDS: ASM Cumitechs 1980 to  
present  
  
Diagnostic Microbiology and  
Infectious Diseases 1980 - 1983



MEMBERSHIPS: Infectious Disease Society of America  
American Society for Microbiology  
American Association for the Advancement of Science  
San Francisco Medical Society  
California Medical Association  
Alpha Omega Alpha  
Bay Area Infectious Disease Society (Vice President)

AWARDS: Scholarship - Regis High School  
New York State College Scholarship  
Francis Shain Scholarship - Jefferson Medical College  
Alpha Omega Alpha - Jefferson Chapter  
Hobart Hare Medical Honor Society - Jefferson Medical  
S.S. Cohen Prize in Medicine - 1962  
Charles Labelle Prize as the Outstanding Graduate  
Student - 1966  
Outstanding Teacher Award - Mount Zion Hospital and  
Medical Center; 1969-1970 and 1972-1973  
Physicians Recognition Award - American Medical  
Association, 1984-1987

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or whether about half of them have completely lost their ability to stimulate adenylate cyclase. They do demonstrate that the receptors are the locus of the alteration in this system.

The methods described here open the way to exploring the fundamental biochemical mechanisms of these processes. Thus, it should be possible to attempt to mimic the functional alterations of the receptors by directly modifying their structure—for example, using appropriate kinases to phosphorylate the purified receptors in vitro. The use of these methods to assess the biological activating function of receptors can help to elucidate the molecular mechanisms that regulate receptor activity. These methods provide a major advance in attempts to understand receptor function and its regulation.

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## Isolation of Lymphocytopathic Retroviruses from San Francisco Patients with AIDS

**Abstract.** Infectious retroviruses have been detected in 22 of 45 randomly selected patients with acquired immune deficiency syndrome (AIDS) and in other individuals from San Francisco. The AIDS-associated retroviruses (ARV) studied in detail had a type D morphology,  $Mg^{2+}$ -dependent reverse transcriptase, and cytopathic effects on lymphocytes. The viruses can be propagated in an established adult human T cell line, HUT-78. They cross-react with antiserum to the lymphadenopathy-associated retrovirus isolated from AIDS patients in France. Antibodies to ARV were found in all 86 AIDS patients and in a high percentage of 88 other homosexual men in San Francisco. This observation indicates the widespread presence of these lymphocytopathic retroviruses and their close association with AIDS.

Acquired immune deficiency syndrome (AIDS) has affected more than 4000 individuals in the world; in San Francisco, over 600 cases have been reported (1). In addition, there are many patients with unexplained chronic lymphadenopathy which may be caused by the agent responsible for AIDS (1). Last year, two different retroviruses were isolated from AIDS patients. One of these, human T cell leukemia virus (HTLV-I) (2), which is associated with T cell leukemias in man (3), has a type C

morphology as determined by electron microscopy; this virus can immortalize T cells to produce continuous cell lines and is primarily cell-associated (3). The other, lymphadenopathy-associated retrovirus (LAV), was isolated from the lymph node of a patient with lymphadenopathy (4) and has subsequently been recovered from patients with AIDS (5). LAV has a type D morphology, causes cytopathic changes in T cells, and is infectious in culture fluids. A third retrovirus, HTLV-III, was recently reported in AIDS pa-

**Table 1.** Peripheral mononuclear cell (PMC) cultures were established from 10 to 30 ml of heparinized blood from individuals seen at the Kaposi's sarcoma clinic, University of California, San Francisco, or the AIDS clinic, San Francisco General Hospital. Patients were selected at random intervals from the sequence of individuals appearing at the clinics for evaluation. All patients and most of the clinically healthy individuals had lived in San Francisco for at least 2 years. The PMC were separated on Ficoll-Hypaque gradients (9). Washed cells were plated at approximately  $2 \times 10^6$  per milliliter in RPMI 1640 containing 10 percent fetal bovine serum and antibiotics (penicillin, 100 unit/ml; streptomycin 100  $\mu$ g/ml). To this medium was added interleukin-2 (Meloy) (0.5  $\mu$ g/ml) and Polybrene (1  $\mu$ g/ml). At initiation of the cultures, phytohemagglutinin (Wellcome), approximately 2.5  $\mu$ g/ml, was added. Some cultures also received  $10^{-5}$  M  $\beta$ -mercaptoethanol and sheep antisera to interferon- $\alpha$  (4) provided by the National Institutes of Health (lot 61220); K. Cantell, Helsinki; or F. Barré-Sinoussi, Paris. These antisera were used at a dilution that neutralized 700 to 1000 units of interferon- $\alpha$  per milliliter of culture. The culture supernatants were routinely assayed for  $Mg^{2+}$ -dependent reverse transcriptase activity (see legend to Fig. 1) every 3 to 6 days. The cells were studied for the presence of HTLV-I and LAV antigens by standard indirect immunofluorescence assays. For these studies, cells were put on glass slides, air dried, and fixed in cold acetone for 15 minutes. A monoclonal antibody to HTLV p19 provided by Robert-Guroff and Gallo, National Institutes of Health, and a monoclonal antibody to adult T cell leukemia virus (ATLV) p19/p28 provided by Y. Hinuma, Kyoto, Japan (10), were used. For detection of LAV, human serum (from patient B.R.U.) provided by Barré-Sinoussi, Paris, was used (4). Peripheral mononuclear cells producing ARV were also tested for reactivity with sera from AIDS patients from San Francisco. For the sera we examined, the results were the same as those obtained with the B.R.U. serum. The fluorescein-conjugated antibodies for these immunofluorescence assays were either goat antiserum to mouse immunoglobulin G or goat antiserum to human immunoglobulin G. Some cultures were examined for virus by electron microscopy (see legend to Fig. 2). Any cultures that gave positive results repeatedly by any of these tests were considered positive for virus.

Subjects	No. tested	Positive results	
		No.	Percent
Patients with diagnosis of			
AIDS with Kaposi's sarcoma	41	22	53.6
AIDS with opportunistic infection	4	0	0
Lymphadenopathy syndrome	10	5	50.0
Other individuals			
Male sexual partners of AIDS patients*	14	3	21.4
Clinically healthy homosexual men†	9	2	22.2
Clinically healthy heterosexual individuals‡	23	1	4.0

\*Clinically healthy individuals who had steady sexual contact with a patient for at least 6 months before the patient became ill. †Some of these individuals volunteered for the study.



tients and related syndromes (6). This virus has some cross-reactivity with HTLV-I and HTLV-II but, like LAV, has a type D morphology and causes cytopathic changes in lymphocytes.

In attempts to isolate the infectious agent responsible for AIDS in homosexual patients from San Francisco, we have identified lymphocytotropic retroviruses that are similar to LAV. In addition, serologic studies show a high prevalence of antibodies to these AIDS-associated retroviruses (ARV) in individuals from San Francisco.

Using interleukin-2 and phytohemagglutinin stimulation (3), we established more than 100 cultures of peripheral mononuclear cells (PMC), which after 1 week in culture, were primarily of the T cell lineage (7). When supernatants from cultures prepared from 41 homosexual AIDS patients were examined, 22 were positive for  $Mg^{2+}$ -dependent reverse transcriptase activity (Table 1). The viruses were found primarily in PMC of patients in the early stages of disease. The reverse transcriptase activity was detected in the PMC usually within the first 2 weeks of culture, with the peak of activity observed by 12 to 16 days (Fig. 1A). When bone marrow aspirates were cultured, three of nine cultures from AIDS patients showed evidence of retroviruses (data not shown). With some cell cultures, the use of antiserum to interferon helped to demonstrate the presence of virus (4). When reverse transcriptase activity diminished in the cultures after 2 to 3 weeks, the addition of fresh lymphocytes from normal donors sometimes reestablished this activity (see legend to Fig. 1A). Supernatant fluids from positive cultures (some stored at  $-70^{\circ}\text{C}$  for more than 3 months) also induced reverse transcriptase activity in uninfected fresh lymphocyte cultures.  $Mg^{2+}$ -dependent reverse transcriptase activity was also observed repeatedly in PMC cultures from patients with lymphadenopathy syndrome, steady male sexual partners of AIDS patients, clinically healthy homosexual men, and one healthy young heterosexual man (Table 1).

The viruses detected in seven of the PMC cultures were grown in high titer and had similar characteristics. One virus (ARV-2) was recovered within 2 weeks directly from the PMC of a patient approximately 1 month before the onset of AIDS (Fig. 1A). AIDS-associated retroviruses were isolated from subsequent cultures taken 2 and 6 months later, after the onset of AIDS. Multiple time-spaced samplings from five of six other patients with AIDS have also

yielded retroviruses (data not shown).

The reverse transcriptase activity of these viruses was associated with particles banding in a sucrose gradient at 1:14 to 1:16 g/ml (Fig. 1B). With poly(rA) · oligo(dT) or poly(rC) · oligo(dG) as template primers, the viral en-

zyme had up to an eightfold cation preference for  $Mg^{2+}$  over  $Mn^{2+}$ . With  $Mg^{2+}$ , reverse transcriptase levels higher than  $3.5 \times 10^6$  cpm per milliliter of culture supernatant could be reached.

The isolated viruses induced multinucleated cells in lymphocyte cultures and

Table 2. The presence of antibodies to HTLV-I in sera from patients and controls was assessed with slides containing acetone-fixed smears of the M-2 cell line (provided by Y. Hinuma) in which 100 percent of the cells demonstrate HTLV or ATL antigens (3). The controls for this experiment included the M-1 line (from Y. Hinuma), which has less than 1 percent positive cells, and the HUT-78 cell line (provided by A. Gazdar, Bethesda) (8), which lacks expression of HTLV (11). The cells were fixed in acetone and then assayed by standard indirect immunofluorescence procedures; heated ( $56^{\circ}\text{C}$ , 30 minutes) sera from AIDS patients and other patients and controls were used at an initial dilution of 1:10. Antibodies to LAV were detected with fixed cells obtained from Barré-Sinoussi. About 10 percent of these lymphocytes were infected with LAV. Antibodies to ARV were detected with an HUT-78 line in which 40 percent of the cells were infected with ARV-2. Most sera were tested as coded samples. The data are the number of individuals showing positive results as a fraction of the number of individuals tested, with the corresponding percentages given in parentheses.

Subjects	HTLV-I	LAV	ARV
Patients with diagnosis of			
AIDS with Kaposi's sarcoma	7/55 (13)	20/38 (53)	59/67* (88)
AIDS with opportunistic infection	1/5 (20)	2/2 (100)	19/19 (100)
Lymphadenopathy syndrome	1/13 (8)	1/4 (25)	22/27* (81)
Other individuals			
Male sexual partners of AIDS patients	1/19 (5)	7/18 (39)	13/14 (93)
Clinically healthy homosexual men	1/13 (8)	1/4 (25)	27/47* (57)
Clinically healthy heterosexual individuals	0/12 (0)	0/9 (0)	0/56* (0)

\*When antibody negative-sera were tested at a 1:5 dilution against the ARV-infected cells, all eight AIDS patients (giving 67 of 67, or 100 percent positive), three of five lymphadenopathy syndrome patients (giving 25 of 27, or 92 percent positive), and 3 of 20 healthy homosexual controls (giving 30 of 47, or 64 percent positive) showed reactivity. None of the sera from healthy heterosexual individuals was positive at this dilution.

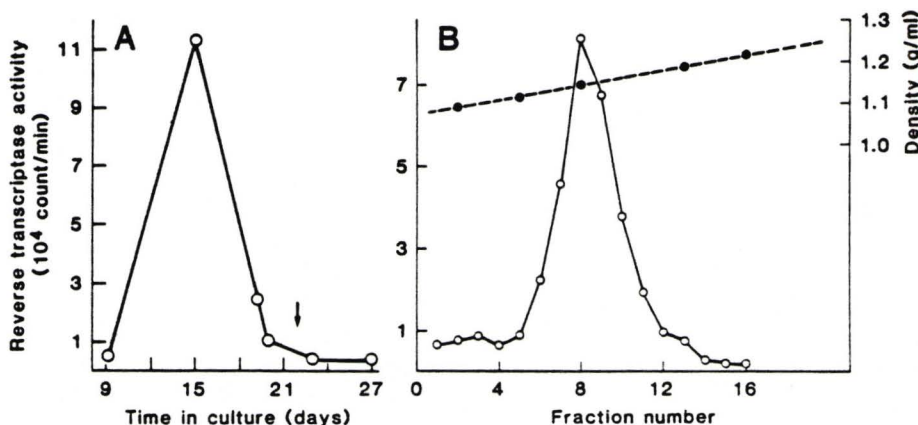


Fig. 1. (A) Kinetics of reverse transcriptase activity detected in peripheral mononuclear cell (PMC) cultures as illustrated by a representative culture. Culture medium (1 to 5 ml) from PMC was centrifuged (Beckman SW41 rotor; 40,000 rev/min,  $4^{\circ}\text{C}$ , 45 minutes). The pellets were assayed in 50  $\mu\text{l}$  of a mixture containing 40 mM tris-HCl (pH 7.8), 60 mM KCl, 2.2 mM dithiothreitol, 10 mM  $MgCl_2$ , 0.1 percent Triton X-100, 30  $\mu\text{Ci}$  of [ $^3\text{H}$ ]thymidine triphosphate (specific activity, 78 Ci/mmol), and poly(rA) · oligo(dT) (50  $\mu\text{g}/\text{ml}$ ) (P-L Biochemicals). Samples were incubated at  $0^{\circ}\text{C}$  for 15 minutes; the reaction was then run for 1 hour at  $37^{\circ}\text{C}$  and stopped with 4 ml of a mixture of 5 percent trichloroacetic acid, 0.005M sodium pyrophosphate, and 0.5N HCl. Precipitates were collected on filters (Whatman GF/A), washed, dried, and counted in a liquid scintillation counter (LKB). A high level of reverse transcriptase activity was seen in the culture on day 15. On day 22 (arrow), when the reverse transcriptase activity was low, the supernatant fluid was removed and inoculated onto fresh human PMC stimulated 3 days before with phytohemagglutinin. Supernatants from this culture, within 6 days, contained reverse transcriptase activity at levels of 650,000 cpm/ml and yielded the virus isolate ARV-2. (B) Density of retrovirus particles. Supernatant from a culture of ARV-infected PMC was concentrated by centrifugation (Beckman SW55 rotor; 45,000 rev/min,  $4^{\circ}\text{C}$ , 30 minutes). The pellet was suspended in 100  $\mu\text{l}$  of a mixture containing 10 mM tris-HCl (pH 8.0), 100 mM NaCl, and 1 mM EDTA (pH 8.0) and layered on a 20 to 60 percent (by weight) sucrose gradient in the same mixture, and centrifuged (Beckman SW55 rotor; 35,000 rev/min,  $4^{\circ}\text{C}$ , 16 hours). Fractions (200  $\mu\text{l}$ ) were collected from the top and assayed for reverse transcriptase activity. Density of sucrose was determined by refractive index measurements.



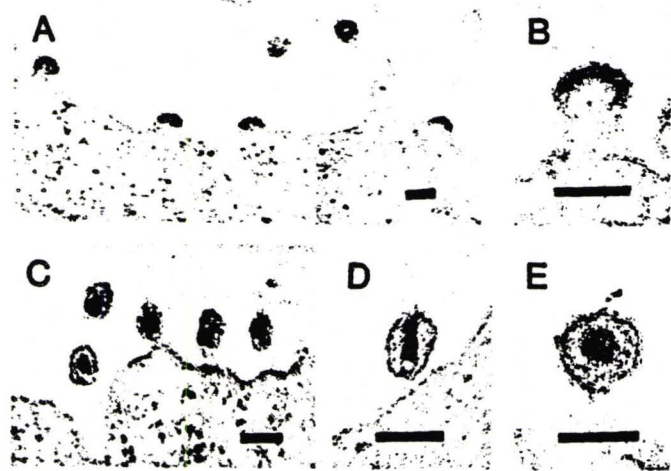


Fig. 2. Transmission electron microscopy of thin sections of peripheral mononuclear cells producing ARV. Cells were fixed in glutaraldehyde, washed, post-fixed in osmium tetroxide, and embedded in Araldite. Thin sections were stained in uranyl acetate and lead citrate. (A and B) Budding forms typical of type C and D particles; (C to E) complete extracellular forms of type D morphology. Scale bar, 100 nm.

did not immortalize the cells. Particles with characteristic type D retrovirus morphology were detected by electron microscopy (Fig. 2). Budding forms showed early features of both type C and type D particles, but only mature type D particles were observed in the cultures.

When antibodies to HTLV-I and LAV were used to detect viral antigens in the cultures infected with these seven isolates (see legend to Table 2), only the antibody to LAV (serum from patient B.R.U.) reacted with cells; up to 20 percent of the cells in these cultures had LAV-related antigens. Sera from AIDS patients in San Francisco reacted with the infected cells in a similar manner (see below).

In attempts to establish ARV in continuous culture, we infected human T cell lines in the presence of antiserum to interferon and Polybrene. The MOLT-4 and CCRF-CEM lines could not be successfully infected, but in the HUT-78 line (8) virus was replicated in substantial titer. This cell line has been useful for the continuous propagation of ARV and the detection of antibodies against virus-infected cells.

A HUT-78 line infected for several weeks with ARV-2 was used to look for antibodies to ARV in sera from patients with AIDS or lymphadenopathy syndrome and in sera from other individuals. The sera were also examined for antibodies to HTLV-I and LAV (Table 2). The results indicated a high prevalence of antibodies to ARV in sera from patients with AIDS and lymphadenopathy syndrome and in sera from steady sexual partners of AIDS patients and healthy homosexual men. When the antibody-negative sera from patients with AIDS and lymphadenopathy syndrome were tested at a lower dilution, all sera from AIDS patients and all but two sera

from lymphadenopathy patients reacted with the ARV-infected cells (footnote to Table 2). No antibodies were detected in the sera of healthy heterosexual individuals from San Francisco. All available sera of individuals from whom ARV was isolated had antibodies to the virus. Some patients' sera titrated at 1:640. The high frequency of these antibodies in healthy homosexuals may reflect a bias resulting from the use of some volunteers for these studies. Nevertheless, these results indicate the close association of ARV with AIDS and lymphadenopathy syndrome, the widespread presence of ARV in the homosexual community, and the detection of greater numbers of individuals with antibodies to ARV than with infectious virus. The data support the contention that lymphadenopathy syndrome is related to AIDS. The prevalence of antibodies to LAV in the patients is in agreement with data from others (4). The lower frequency of antibodies to LAV than of antibodies to ARV could be related to the difficulty in reading the results of the immunofluorescence tests, with only 10 percent of the cells infected. All sera that reacted with LAV also contained antibodies to ARV. The low incidence of antibodies to HTLV-I in our patients was consistent with previous reports (5, 6).

These studies indicate that patients with AIDS and lymphadenopathy syndrome as well as the steady sexual partners of these patients and healthy homosexual men in the San Francisco area have retroviruses in their PMC and bone marrow (Table 1). The retroviruses studied in detail have the characteristics of LAV. Serologic examination showed a high prevalence of antibodies to ARV and LAV in randomly selected patients and healthy homosexual men in the San Francisco area. We have also detected

antibodies to ARV in sera from AIDS patients living elsewhere in the world. These results are the first independent confirmation of LAV-like viruses in patients outside Europe. Our data cannot reflect a contamination of our cultures with LAV since the original French isolate was never received in our laboratory. The relation of ARV to the recently described HTLV-III is still unknown. However, the similarity of the San Francisco isolates to LAV, the same reverse transcriptase cation preference, the same morphology under electron microscopy, and cytopathic effects similar to those of HTLV-III, suggest that all three virus types belong to the same retrovirus subgroup. Although no conclusion can yet be made concerning their etiologic role in AIDS, their biologic properties and prevalence in AIDS patients certainly suggest that these retroviruses could cause this disease.

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3. When the CDC AIDS Task Force began its surveillance activities in the spring of 1981, it learned that a number of homosexual and bisexual men in New York City had developed highly unusual opportunistic infections. Shortly thereafter, similar outbreaks in San Francisco, Los Angeles, Miami, and several other cities were reported to the CDC. As a result of its surveillance activities, the CDC suspected there was a common source of the

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1 outbreak that was not environmental, but infectious in origin. In  
2 August 1981, there were approximately thirty-one living AIDS  
3 patients whose cases had been reported to the CDC from New York  
4 City, California and other locations. CDC investigators  
5 interviewed those patients for information about their medical and  
6 sexual histories in an attempt to learn more about the disease.  
7 The interviewed patients reported sexual activities more similar  
8 to those of gay men seen in sexually transmitted disease clinics  
9 than of homosexual men in the general population. Based on these  
10 interviews with AIDS patients, the CDC hypothesized that the cause  
11 of AIDS was an infectious agent that was probably sexually  
12 transmitted from one person to another.

13 4. As a result of the information obtained from the  
14 interviews of the earlier reported cases, the CDC designed a  
15 case-control study in cooperation with a number of public health  
16 departments around the country, including the Department of Public  
17 Health in San Francisco. When that study commenced in the fall of  
18 1981, there were nine living patients with AIDS among homosexual  
19 and bisexual men in San Francisco. At last report, there were  
20 approximately 700 cases of AIDS in San Francisco, almost all  
21 occurring in homosexual and bisexual men. Over the past three and  
22 a half years, the number of AIDS cases reported to the CDC has  
23 continued to grow.

24 5. An "epidemic" is classically defined as any unusual  
25 occurrence of an illness or health condition beyond that  
26 expected. Since AIDS was not detected prior to 1981 and the CDC

1 now has reports of over 6,000 cases in the United States, the CDC  
2 has classified AIDS as an epidemic. In fact, the CDC considers  
3 AIDS to be one of the most serious epidemics existing in the  
4 United States today.

5 6. As part of my responsibilities at the CDC, I have been  
6 involved in a study in San Francisco known as the City Clinic  
7 Cohort Study. Between 1978 and 1980, approximately 6,875  
8 homosexual and bisexual men at the City's venereal disease clinic  
9 were screened to determine their susceptibility to hepatitis B and  
10 interest in testing a vaccine. In 1982, at the beginning of the  
11 AIDS epidemic, the CDC realized that many of the 6,875 men who  
12 were originally screened for hepatitis exposure were at risk for  
13 contracting AIDS because they were in the highest risk group, i.e.  
14 sexually active gay males who had sought medical care in a  
15 venereal disease clinic. Because the CDC had obtained blood  
16 samples from these men before the AIDS epidemic began, the AIDS  
17 Task Force felt that this was a very important group to study.

18 7. The CDC, in collaboration with the San Francisco  
19 Department of Public Health, then launched a follow-up study in  
20 late 1983 to determine whether members of the original cohort  
21 study group showed any evidence of having contracted AIDS since  
22 the time they were first tested for hepatitis. The CDC selected a  
23 random sample of approximately 770 of the original 6,875 cohort  
24 study members for follow-up examinations and tests. After  
25 obtaining their consent to participate in this study, City Clinic  
26 physicians performed physical examinations on those interested in



1 this study. Participants were also questioned about factors  
2 thought to be involved in the etiology of AIDS. CDC investigators  
3 analyzed these data in order to identify characteristics that  
4 distinguished the men from the cohort who developed AIDS from  
5 those who had no evidence of AIDS. This study proved to be very  
6 effective in predicting why some of the men contracted AIDS,  
7 developed AIDS-related conditions, or showed antibodies to the  
8 virus now believed to cause AIDS. The materials attached as  
9 Exhibits 1 and 2 hereto, which are incorporated herein by  
10 reference as though fully set forth, describe the preliminary  
11 results of our follow-up study. These results are being presented  
12 at the Inter-Science Conference on Anti-Microbial and Chemotherapy  
13 (ICAAC), Washington, D.C., on October 9, 1984.

14 8. Because all of the members of the original cohort study  
15 group went to a sexually transmitted disease clinic, they may not  
16 be representative of all gay men in San Francisco or other areas  
17 of the United States. In my opinion, the results of the cohort  
18 study probably understate certain risk factors because members of  
19 the control group who do not have AIDS tend to have more sexual  
20 contacts than other members of the community. Therefore, if we  
21 find statistically significant differences in our study, the  
22 relationship is probably important as a risk factor for AIDS. On  
23 the other hand, if a relationship is not statistically  
24 significant, it could still be important as a risk factor for AIDS  
25 among homosexual men in the general population.

26 9. The CDC had two major reasons for doing the follow-up

1 study described above. First, we hoped to be able to explain the  
2 natural history of AIDS; that is, what happens when a person  
3 becomes infected and begins to develop signs of illness. This  
4 would be accomplished by following men at various stages of  
5 illness: some with no evidence of infection, some with evidence of  
6 viral infection but no signs or symptoms of illness, some with  
7 symptoms or signs of illness (including lymphadenopathy, which  
8 appears to be one of the predictors of AIDS), and, finally, those  
9 who have been diagnosed with AIDS. Second, we wanted to study the  
10 risk factors for evidence of infection with the AIDS virus. The  
11 risk factors were to be identified by answering the question:  
12 What differentiates those who test positive for the virus from  
13 those who test negative?

14 10. Among the 6,875 members of the original cohort study,  
15 136 (or 2 percent) have been reported with AIDS. Of the 770  
16 members of the follow-up study, 373 random selectees have been  
17 evaluated to date. Of this group of 373 men, nine (or 2.4  
18 percent) have AIDS; 85 (or 22.8 percent) have lymphadenopathy; 8  
19 (or 2.1 percent) have other AIDS-related conditions; 9 (or 2.4  
20 percent) have abnormal blood counts; and the remaining 262 (or  
21 70.2 percent) have none of the above and seem to be well. These  
22 men were placed in a mutually-exclusive hierarchy, so someone who  
23 had both lymphadenopathy and AIDS was only counted as having  
24 AIDS. Therefore, these figures are minimum estimates.

25 11. In addition, about 62 percent of the 373 random  
26 selectees who were tested in 1984 showed antibody to the AIDS



1 virus. These include 55 percent of those with AIDS (which is a  
2 minimum estimate since once someone develops overt AIDS, the test  
3 tends to become negative); 88 percent of those with  
4 lymphadenopathy; 75 percent of those with AIDS-related conditions;  
5 78 percent of those with abnormal blood counts; and 53 percent of  
6 those who are apparently well. An important fact is that of the  
7 men who are apparently well, about 53 percent have been infected  
8 with the AIDS virus although they show no clinical signs or  
9 symptoms of the disease.

10 12. All of the AIDS studies conducted to date by the CDC on  
11 gay men have identified as an important risk factor the number of  
12 different sexual partners over a certain period of time before the  
13 onset of symptoms. See Exhibit 3 hereto, which is incorporated  
14 herein by reference as though fully set forth. Generally, the  
15 number of different people a person has had sexual contact with in  
16 which there is some form of penetration is the best variable  
17 identified in terms of distinguishing between those individuals  
18 with AIDS and those who do not have AIDS. By penetration, I mean  
19 a penis entering into the mouth, the anus, or some other body  
20 cavity. The means of penetration can also be a hand or fist.

21 13. In determining the risk for contracting AIDS, the CDC's  
22 cooperative cohort study used a type of multi-variate analysis  
23 which examined a constellation of variables. For each variable,  
24 the CDC investigators compared the presence or absence of this  
25 variable in AIDS patients with members of the cohort who showed no  
26 evidence of infection, had no symptoms of disease, and tested

1 negatively for the AIDS virus.

2 The initial findings of the cohort study show that the most  
3 statistically significant variable in distinguishing those  
4 individuals with AIDS from those with no signs of the disease is  
5 the number of gonorrhea infections per month. As might be  
6 expected, the number of gonorrhea infections per month is also  
7 highly correlated with the number of different sex partners. In  
8 multi-variate analysis, when gonorrhea enters the equation, it  
9 cancels out the effect of the number of different partners;  
10 however, when gonorrhea is excluded as a factor, the number of  
11 different partners is statistically significant. Preliminary  
12 analyses of cohort study data showed that the number of sexual  
13 partners is a statistically significant risk factor for AIDS as  
14 well as gonorrhea.

15 Another statistically significant variable is reported  
16 sexual contact with a person known to have AIDS. In fact, those  
17 men who have AIDS are much more likely to report that they have  
18 had sex with a man who also has AIDS than those who show no  
19 evidence of AIDS. A third variable of statistical significance is  
20 a history of receptive anal intercourse. Men who reported a  
21 history of receptive anal intercourse were more likely to have  
22 AIDS than those who showed no evidence of AIDS. A fourth  
23 significant variable was age. Among members of the cohort,  
24 younger men were much more likely to have AIDS than those who were  
25 older at the time they were retested for the AIDS virus.

26 14. It is significant that, aside from age, only those

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10/9/84



1 variables that seem to be related to sexual activity entered into  
2 the constellation of variables that distinguish those individuals  
3 who have AIDS from those who do not. For instance, smoking  
4 cigarettes, using nitrite inhalants, or other personal activities  
5 did not enter in the statistical model. These observations point  
6 to sexual transmission of an infectious agent and support the  
7 hypothesis that the number of sexual partners a person has in a  
8 period of months preceding infection is a significant factor in  
9 the risk of contracting AIDS.

10 15. Our studies also indicate a relationship between the  
11 number of different sex partners an individual has in a month and  
12 the likelihood that he will meet his partners in bathhouses or sex  
13 clubs. When I use the term "bathhouse," I refer to those places  
14 that gay men associate with locating large number of sex partners  
15 over a short period of time. Based on cohort study data, the more  
16 sex partners a person has, the more likely it is that person will  
17 get AIDS. The cohort study has also found that the more sex  
18 partners a person has, the more likely he is to find an  
19 increasingly greater portion of those partners in bathhouses. (See  
20 my July 10, 1984 letter to Dean Echenberg at the San Francisco  
21 Department of Public Health's Bureau of Communicable Disease  
22 Control, which is attached hereto as Exhibit 4 and incorporated  
23 herein by reference as though fully set forth).

24 16. Among those men who frequent bathhouses, the cohort  
25 study found that as the number of sex partners in these facilities  
26 increases, the risk of developing AIDS also increases. While the

1 CDC is still collecting data, it appears that when all the data  
2 are in, and categories are more clearly defined, the CDC will have  
3 a more precise estimate of exactly what that risk is. However, I  
4 would point out that any statistical association between bathhouse  
5 attendance and the risk of getting AIDS could be accounted for by  
6 number of sexual partners, since bathhouse attendance correlates  
7 with AIDS only insofar as bathhouses facilitate the location of  
8 multiple partners over a short period of time. Once one controls  
9 for the number of partners, one would expect to see the  
10 statistical association of bathhouse attendance with AIDS  
11 diminish. A statistical association between bathhouse visits and  
12 AIDS can be explained by numbers of sexual partners, a variable  
13 known to be a significant risk factor for AIDS.

14 17. Attached as Exhibit 5 hereto and incorporated herein by  
15 reference as though fully set forth is a copy of an article  
16 published in August, 1983, in the Annals of Internal Medicine  
17 entitled "National Case-Control Study of Kaposi's Sarcoma and  
18 Pneumocystis Carinii Pneumonia in Homosexual Men: Part 1,  
19 Epidemiologic Results," which was one of the first epidemiologic  
20 studies on AIDS. Attached as Exhibit 6 hereto, and incorporated  
21 herein by reference as though fully set forth, is my July 16, 1983  
22 letter to LANCET. These materials discuss the epidemiologic  
23 evidence for the sexually transmitted nature of AIDS.

24 ///

25 ///

26 ///

10/9/84  
20228



1 I declare under penalty of perjury under the laws of the  
2 State of California that the foregoing is true and correct.

3  
4 October 9, 1984

5 Dated

William W. Darrow

6 William Ward Darrow, Ph.D.

7 SUBSCRIBED and sworn to on  
8 this 9<sup>th</sup> day of October.

9 My commission expires:

10 Notary Public, Georgia, State at Large  
11 My Commission Expires July 4, 1988

12 Patricia S. Rogers  
13 NOTARY PUBLIC  
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Acquired Immune Deficiency Syndrome (AIDS) in a Cohort of Homosexual Men.  
W. Darrow, H. Jaffe, E. Braff, et al., CDC, Atlanta, GA; City/County  
Health Department, San Francisco, California.

#### INTRODUCTION

Between 1978 and 1980, 6,875 homosexual men seen at the San Francisco City Clinic were enrolled in studies of the prevalence, incidence, and prevention of hepatitis B virus infections. Soon after receiving the first reports of patients with the acquired immunodeficiency syndrome (AIDS), the San Francisco Health Department (SFHD) compared its list of reported AIDS patients to its list of clinic patients previously enrolled in hepatitis studies and recognized that members of the City Clinic cohort were at increased risk for AIDS. In 1984, the SFHD and the Centers for Disease Control (CDC) began a collaborative follow-up study of AIDS among cohort members.

Eligible participants in the follow-up study included all cohort members reported to meet the CDC surveillance definition for AIDS and a 10% sample of cohort members not reported to have AIDS. Participants who could be located, were alive, and gave written informed consent were interviewed regarding their medical histories and lifestyles, examined for signs of AIDS, and had blood samples collected. Complete blood counts were done locally; frozen serum samples were sent to CDC. At CDC, sera collected from cohort members during the hepatitis studies of 1978 to 1980 and in the 1984 follow-up study were tested with a radioimmunoprecipitation (RIP) assay for antibodies to p25, the core protein of the lymphadenopathy-associated virus (LAV), a T-cell lymphotropic retrovirus that has been etiologically associated with AIDS.

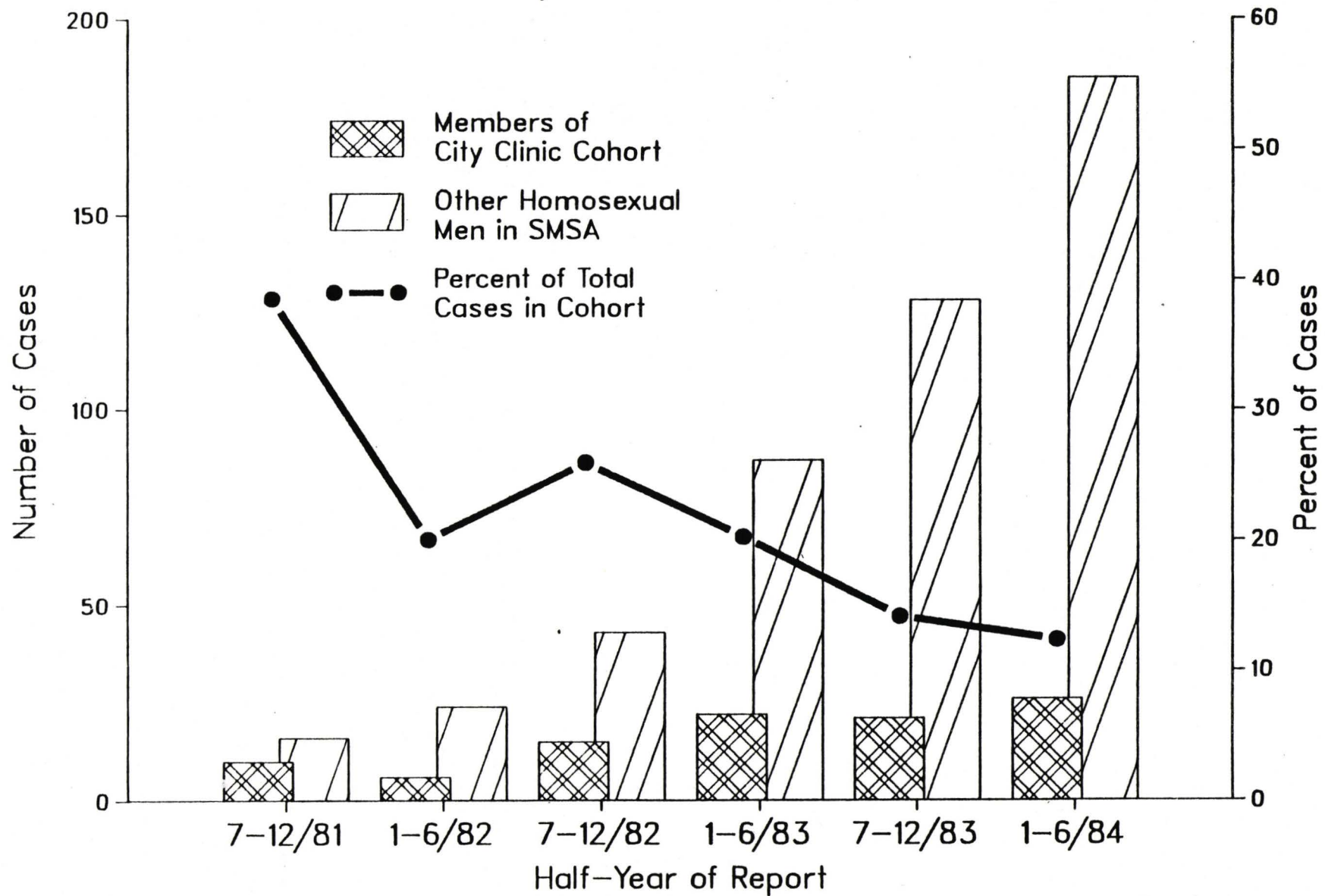
*Exhibit 1*



## Occurrence of AIDS among Cohort Members

- A. Of the 6,875 cohort members, 119 (1.7%) were reported to have AIDS as of September 1, 1984.
- B. Of these 119 patients, 107 (89.9%) were reported to be residents of the San Francisco Standard Metropolitan Statistical Area (SMSA) at the time of their onsets of illness.
- C. These 107 patients from the cohort comprised 16.3% of the 655 AIDS patients reported among homosexual men in the SMSA.
- D. Although the number of AIDS cases among cohort members in the SMSA has increased, the proportion of patients belonging to the cohort has significantly decreased ( $P=.001$ )(Figure 1).

# Cases of AIDS Among Homosexual Men in the San Francisco SMSA by Date of Report July 1981 – June 1984





## RESULTS

### Occurrence of AIDS-related Conditions in a

### Sample of Cohort Members not reported to have AIDS

- A. Of 764 men in the 10% sample of cohort members not reported to have AIDS, 364 (47.6%) have been enrolled in the follow-up study.
- B. In 346 participants, the prevalence of conditions that may be related to AIDS was as follows:

<u>Condition*</u>	<u>Number of Participants (%)</u>	
Lymphadenopathy at two or more extrainguinal sites	85	(23.3)
Thrush or symptoms suggesting AIDS prodrome	8	( 2.2)
Anemia, lymphopenia, or neutropenia	9	( 2.5)
None of the above	262	(72.0)
<u>Total</u>	364	(100.0)

\*If more than one condition present, participant included only in group listed first.

## RESULTS

### Serologic Studies of Cohort Members

- A. Serum samples, collected once between 1978 and 1980 and again in 1984 from cohort members reported to have AIDS and the sample of cohort members not reported to have AIDS, were tested for antibody to LAV p25.
- B. Prevalence of antibody by year of serum collection and presence, in 1984, of AIDS or conditions that may be related to AIDS was as follows:

<u>Condition*</u>	<u>No. Sera Positive/No. Tested (%)**</u>	
	<u>1978-80</u>	<u>1984</u>
AIDS	24/95 (25.3)	16/35 (45.7)
Lymphadenopathy at two or more extrainguinal sites	5/82 ( 6.1)	75/85 (88.2)
Thrush or symptoms suggesting AIDS prodrome	0/8	6/8 (75.0)
Anemia, lymphopenia or neutropenia	0/7	7/9 (77.8)
None of the above	15/244 (6.1)	139/262 (53.1)

\*If more than one condition present, participant included only in group listed first.

\*\*Excludes borderline results.

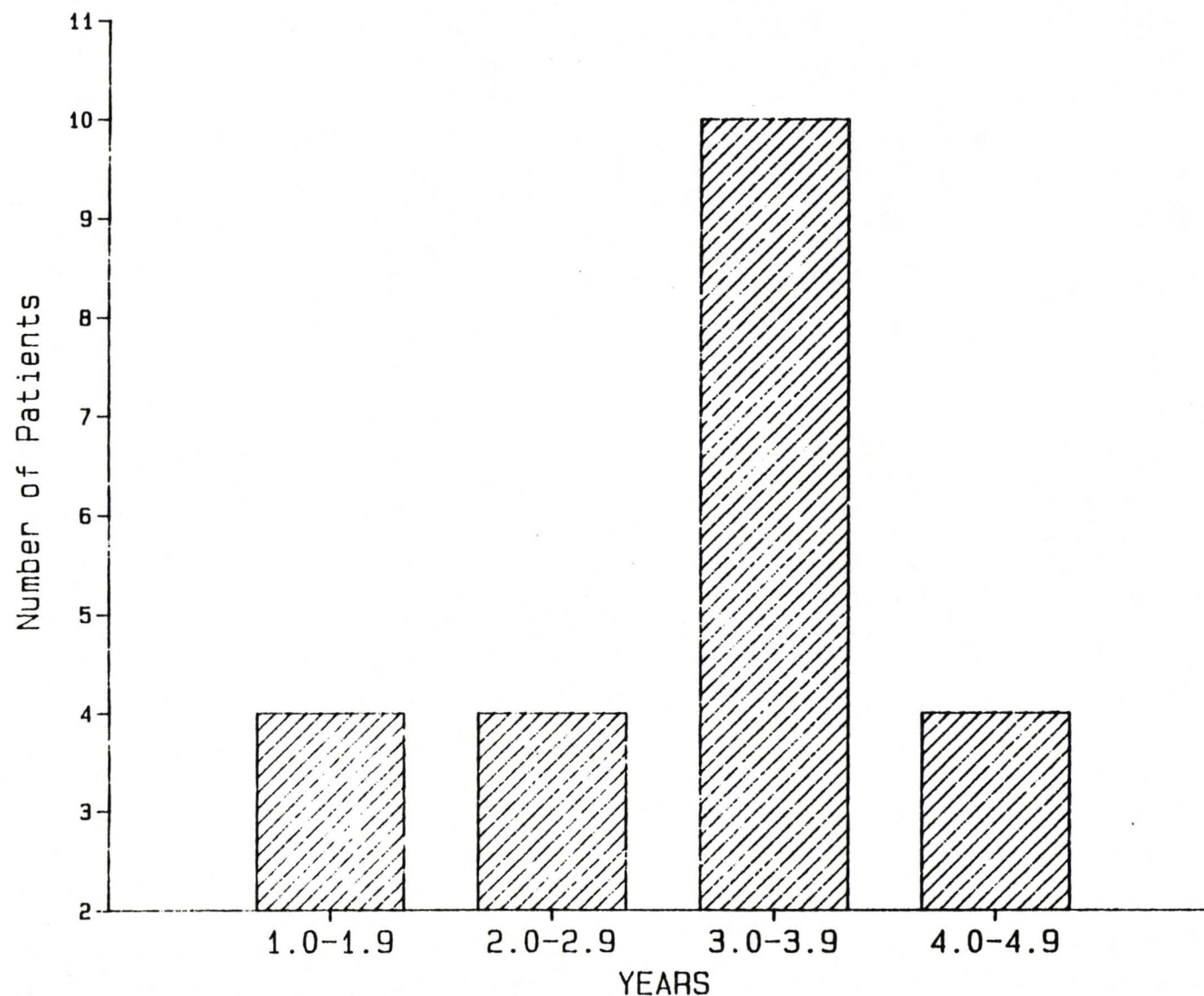


Serologic Studies of Cohort Members

(continued)

- C. The prevalence of antibody to LAV p25 among sera collected from 1978 to 1980 was significantly higher for patients who developed AIDS than for cohort members who thus far have neither AIDS nor AIDS-related conditions ( $p < .0001$ ).
  
- D. For 22 AIDS patients whose initial serum sample had antibody to LAV p25, the interval between the positive serologic test and the onset of AIDS symptoms was 1.3 years to 4.9 years (median = 3.2 years) (Figure 2).

# Interval Between First Positive Test for Anitbody to LAV p25 and Onset of Symptoms for 22 AIDS Patients





## Risk Factors for AIDS

- A. In a preliminary analysis, behavioral and other characteristics of 47 cohort members who developed AIDS were compared with those of 67 cohort members who had neither AIDS nor AIDS-related conditions and had no detectable antibody to LAV p25.
- B. Important characteristics in bivariate analysis were as follows:

<u>Characteristic*</u>	<u>AIDS Patients</u>	<u>Control Group</u>	<u>p</u>
1. Mean number of gonococcal infections/month	.05	.02	.001
2. Had sexual contact with AIDS patients (%)	43.9	17.9	.003
3. Age when interviewed	<u>35.2</u>	<u>39.7</u>	.003
4. Had more than 4 male partners/month (%)	43.9	17.9	.008
5. Mean number of partners who ejaculated into interviewee's rectum	214	89	.12

\*The behavioral variables refer to time between entry into cohort and date of symptom onset for AIDS patients or date of entry into follow-up study for other participants.

# Results - IV

## Risk Factors for AIDS

(continued)

C. Significant characteristics in a stepwise logistic regression analysis using a forward selection procedure were as follows:

<u>Characteristic*</u>	<u>Adjusted Chi-Squares**</u>			
	<u>P</u>	<u>P</u>	<u>P</u>	<u>P</u>
1. Gonococcal infections/month	.001	-	-	-
2. Sexual contact with AIDS patient	.001	.002	-	-
3. Receptive anal intercourse	.008	.03	.04	-
4. Younger age	.03	.05	.04	.03

\*Characteristics are listed by order in which they enter logistic regression equation.

\*\*Indicates significance of characteristic once previously entered characteristics are taken into account.



## Conclusions

- A. Members of the City Clinic cohort are at relatively high risk for AIDS and conditions which may be related to AIDS.
- B. Between 1978-80 and 1984, the majority of cohort members were exposed to LAV or a serologically related retrovirus.
- C. Cohort members who now have AIDS were more likely to have been exposed to this virus between 1978 and 1980 than cohort members who remain well.
- D. Development of antibody to this virus may precede the onset of AIDS by several years.
- E. The sexual lifestyle of certain cohort members appears to place them at increased risk for AIDS.

CDC Protocol 639  
AIDS in a Cohort of Homosexual Male Clinic Patients  
Proposed Amendments

## I. General Description

## A. Phase I Progress Report

As of July 28, 1984, the San Francisco City-County Health Department had learned of 124 members of the City Clinic hepatitis B study cohort who had been diagnosed with AIDS. Of these 124 men, 107 had been reported to CDC and 17 were pending additional information. Of the 107 patients reported to CDC, 47 (43.9%) had been enrolled in the follow-up study being conducted as part of a cooperative agreement between the Health Department and CDC. Dispositions on the 107 reported cases of AIDS\* and 764 men selected at random for follow-up were as follows:

<u>Disposition</u>	<u>AIDS Cases Reported to CDC</u>	<u>Prevalence Study Group</u>	<u>Incidence Study Group</u>	<u>Totals</u>
Enrolled	47 (43.9%)	258 (63.7%)	172 (47.9%)	477 (54.8%)
Unable to locate	2 ( 1.9%)	81 (20.0%)	124 (34.5%)	207 (23.8%)
Refused	3 ( 2.8%)	16 ( 4.0%)	22 ( 6.1%)	41 ( 4.7%)
Deceased	49 (45.8%)	3 ( 0.7%)	5 ( 1.4%)	57 ( 6.5%)
Pending: Out of jurisdiction	2 ( 1.9%)	40 ( 9.9%)	27 ( 7.5%)	69 ( 7.9%)
Pending: Local	4 ( 3.7%)	7 ( 1.7%)	9 ( 2.5%)	20 ( 2.3%)
Total	107(100.0%)	405(100.0%)	359 (99.9%)	871(100.0%)
		(excludes 14 cases)	(excludes 7 cases)	

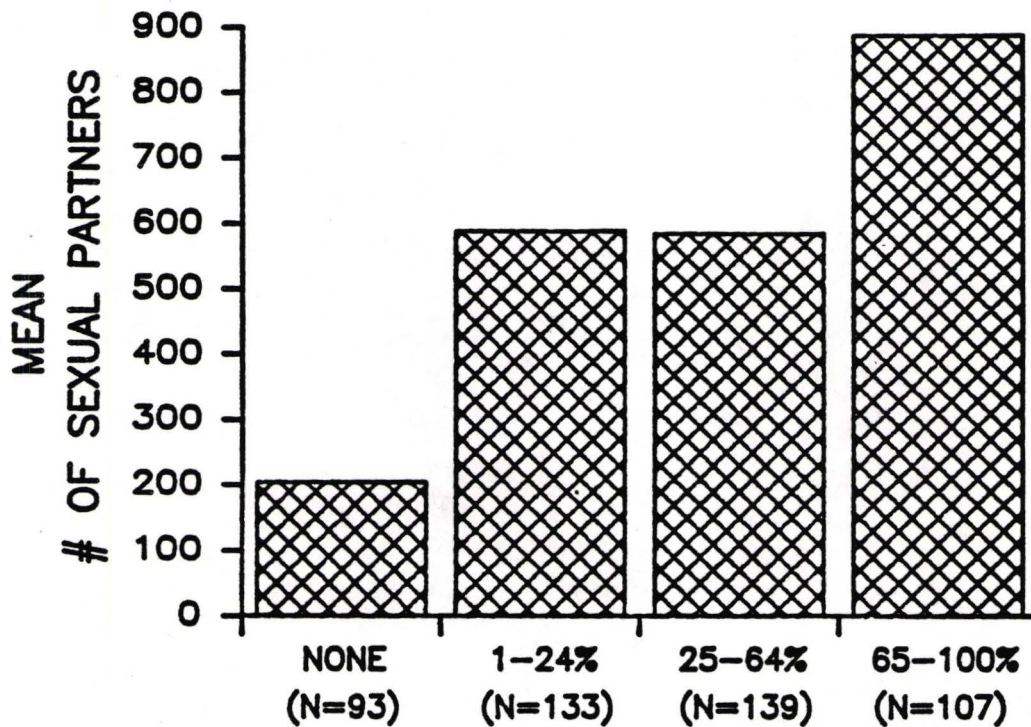
Since data collection began, a radioimmunoprecipitation (RIP) assay for antibodies to the core protein (p25) of lymphadenopathy-associated virus (LAV) has been developed by investigators at CDC. Preliminary analyses of serologic specimens drawn in 1978-80 from 452 members of the City Clinic cohort study, and follow-up specimens from 378 men retested in 1984, categorized by their health status when reexamined in 1984, revealed:

<u>Health status when reexamined in 1984</u>	<u>1978-80 Specimens</u>		<u>1984 Specimens</u>	
	<u>Number tested</u>	<u>Percent positive</u>	<u>Number tested</u>	<u>Percent positive</u>
AIDS patient	109	24.8	38	44.7
Lymphadenopathy	85	4.7	82	87.8
Other signs or symptoms	19	0	17	70.6
<u>No signs or symptoms</u>	<u>239</u>	<u>6.3</u>	<u>241</u>	<u>53.9</u>
Total	452	10.2	378	61.1

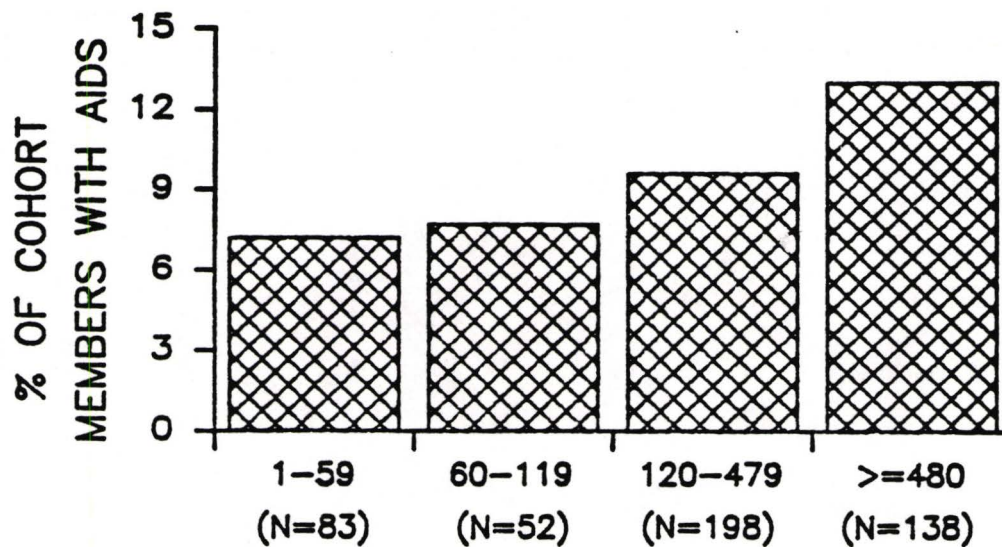
\* As of August 31, 1984, 131 cases of AIDS had been identified among the 6,875 members of the cohort, 122 patients had been reported to CDC (119 AI cases), and 57 had been enrolled in the follow-up study. Sixty-five AIDS patients (49.6%) were known to have died.



## SEXUAL PARTNERS AND AIDS IN THE CITY CLINIC COHORT



% OF EXPOSURES OCCURRING IN BATHHOUSES



NUMBER OF MALE PARTNERS

Exhibit 3



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Centers for Disease Control  
Atlanta GA 30333  
404 329-3162  
FTS 236-3162

July 10, 1984

Dean Echenberg, M.D., M.P.H.  
Bureau of Communicable Disease Control  
San Francisco Department of Public Health  
101 Grove Street  
San Francisco, California 94115

Dear Dean:

In the article on antibodies to LAV/HTLV-III proposed for this week's MMWR, you will see a reference to a manuscript by Francis et al. (In preparation). Findings regarding seroprevalence and seroconversion in the City Clinic cohort are incomplete, but will be included in the manuscript by Francis et al. when available. This manuscript was first drafted last summer and sent to Dr. Braff about one year ago. Since then, the number of cases in the cohort has almost doubled, and much has been learned about the etiology of AIDS. A revised working draft of the manuscript (dated June 30, 1984) is enclosed along with another copy of my memorandum of May 14 (which shows preliminary results of serologic tests for antibodies to LAV/HTLV-III among 235 members of the City Clinic cohort). After you have a chance to look this over, I'd like to have your ideas. We would be happy to have you join us in authorship.

While looking for a copy of my letter of April 11, I found several other letters that you might not have seen. One was sent to Jim Wylie as a follow-up to our meeting during May 4-5, and my luncheon with Drs. Braff and Winkelstein last October. Others were sent to Drs. Braff and Dritz on March 22, 1984, regarding trends in sexually transmitted diseases in San Francisco. Since these items are of continuing interest, I have included copies of these letters. Also enclosed are a copy of the article by Cristine Russell published in the Washington Post on July 3, and a figure that you suggested and needs explanation.

The top part of the figure shows that the number of sexual partners reported by 472 members of the cohort (49 with AIDS and 423 who have not been diagnosed with AIDS) increases from an average (mean) of 204 to 886 as the proportion of exposures in bathhouses increases from none to 65-100%. The bottom part shows the relationship between number of male partners and the occurrence of AIDS. As the number of male partners increases from less than 60 to 480 or more (over the past 72 or so months), the proportion of homosexual male clinic patients with AIDS increases from 7.2% to 13.0%. Although numbers of partners and AIDS are significantly associated ( $p < 0.0001$ ), and men who go to bathhouses tend to have greater numbers of partners ( $p < 0.0001$ ), bathhouse attendance is not significantly associated with AIDS among the 472 cohort members who were interviewed from December 1983 through June 1984 ( $p = 0.496$ ). The apparent reason for these findings is the high rate of AIDS among men with many partners, but no exposures or few exposures in bathhouses.

Exhibit 4



Page 2 - Dean Echenberg, M.D., M.P.H.

I hope that the relationship among numbers of sexual partners, bathhouse exposures, and AIDS is now clear. In our national case-control study of 1981, there was some evidence of an association between bathhouse attendance and the occurrence of AIDS. In our cohort study of 1983-4, there is no association between number of bathhouse exposures and AIDS in San Francisco. "Number of partners" is associated with AIDS, but "proportion of bathhouse exposures" is not associated with AIDS in the City Clinic cohort.

I have made my plans to be in San Francisco on August 1-3, 1984, to talk with you, Don Hawkins, Paul O'Malley and others about our findings from phase I of our follow-up study, and on August 6-8, 1984, to work at City Clinic on procedures for phase II. I hope that we will be able accomplish much during these six days, because I won't be able to return to San Francisco until after Labor Day.

Best regards to you and your staff.

Sincerely yours,

*Bill*

William W. Darrow, Ph.D.  
Research Sociologist  
AIDS Activity  
Center for Infectious Diseases

Enclosures

cc:  
Paul O'Malley

CDC's case control study  
aka  
Jaffe CDC  
#2

## National Case-Control Study of Kaposi's Sarcoma and *Pneumocystis carinii* Pneumonia in Homosexual Men: Part 1, Epidemiologic Results

HAROLD W. JAFFE, M.D.; KEEWHAN CHOI, Ph.D.; PAULINE A. THOMAS, M.D.; HARRY W. HAVERKOS, M.D.; DAVID M. AUERSACH, M.D.; MARY E. GUINAN, Ph.D., M.D.; MARTHA F. ROGERS, M.D.; THOMAS J. SPIRA, M.D.; WILLIAM W. DARROW, Ph.D.; MARK A. KRAMER, Ph.D.; STEPHEN M. FRIEDMAN, M.D.; JAMES M. MONROE, M.S.; ALVIN E. FRIEDMAN-KIEN, M.D.; LINDA J. LAUBENSTEIN, M.D.; MICHAEL MARMOR, Ph.D.; BIJAN SAFAI, M.D.; SELMA K. DRITZ, M.D.; SALVATORE J. CRISPI, B.A.; SHIRLEY L. ANNIN, M.D.; JOHN P. ORKWIS, B.S.; ALEXANDER KELTER, M.D.; WILMON R. RUSHING, M.P.H.; STEPHEN B. THACKER, M.D.; and JAMES W. CURRAN, M.D., M.P.H.; Atlanta, Georgia; New York, New York; and San Francisco and Los Angeles, California

To identify risk factors for the occurrence of Kaposi's sarcoma and *Pneumocystis carinii* pneumonia in homosexual men, we conducted a case-control study in New York City, San Francisco, Los Angeles, and Atlanta. ~~Patients~~ patients (cases) (39 with Kaposi's sarcoma, 8 with *Pneumocystis* pneumonia, and 3 with both) and 120 matched homosexual male controls (from sexually transmitted disease clinics and private medical practices) participated in the study. The variable most strongly associated with illness was a larger number of male sex partners per year (median, 61 for patients; 27 and 25 for clinic and private practice controls, respectively). Compared with controls, cases were also more likely to have been exposed to feces during sex, have had syphilis and non-B hepatitis, have been treated for enteric parasites, and have used various illicit substances. Certain aspects of a lifestyle shared by a subgroup of the male homosexual population are associated with an increased risk of Kaposi's sarcoma and pneumocystis pneumonia.

IN JUNE AND JULY 1981, reports from California and New York City described the highly unusual occurrence of life-threatening opportunistic infections (particularly *Pneumocystis carinii* pneumonia), and a malignancy, Kaposi's sarcoma, in young, previously healthy, homosexual men (1, 2). Subsequent reports described the occurrence of the same illnesses in a smaller number of heterosexual men and women (3). Based on a national surveillance system, the Centers for Disease Control (CDC) concluded that the first cases in the "outbreak" of Kaposi's sarcoma and pneumocystis pneumonia had

their onset in 1978, and that most cases had occurred since January 1981 (4). Underlying the occurrence of Kaposi's sarcoma and pneumocystis pneumonia was a type of acquired cellular immunodeficiency not previously described (5-8). This illness is now called "the acquired immune deficiency syndrome" (9).

In October 1981, CDC epidemiologists in collaboration with investigators in New York City, San Francisco, Los Angeles, and Atlanta began an exploratory case-control study to identify risk factors for the occurrence of Kaposi's sarcoma and pneumocystis pneumonia in previously healthy young persons. Because we sought detailed historical information on a broad range of topics, we limited our case selection to patients whom we could interview in person. Because we knew of only four living heterosexual patients when the study began, we limited our study to homosexual patients. We report the results of the study.

### Methods

#### CASE DEFINITION AND SELECTION

Patients (cases) were homosexual men between the ages of 15 and 60 years, who had biopsy-proven Kaposi's sarcoma, pneumocystis pneumonia, or both. Persons with known predisposing risk factors for either disease, such as a malignancy other than Kaposi's sarcoma or prior treatment with immunosuppressive agents, were excluded from the study. Men were considered to be homosexual if they had had sexual intercourse with one or more men during the year before the onset of illness.

As part of CDC surveillance activities, a case file for Kaposi's sarcoma and pneumocystis pneumonia was established in June 1981 (4). By October 1981, CDC had received reports of 70 cases (50 with Kaposi's sarcoma, 14 with pneumocystis pneumonia, and 6 with both diseases) in New York City, San Francisco,

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Exhibit 5



Table 1. Characteristics of 50 Homosexual Men with Kaposi's Sarcoma, Pneumocystis Pneumonia, or Both

	Patients (Cases)			
	Kaposi's Sarcoma (n = 39)	Pneumocystis Pneumonia (n = 8)	Both (n = 3)	Total (n = 50)
City of residence				
New York	28	6	1	35
San Francisco	7	1	1	9
Los Angeles	2	1	1	4
Atlanta	2	0	0	2
Race				
White	31	5	2	38
Black	6	1	0	7
Hispanic	2	2	1	5

cisco, Los Angeles, and Atlanta, that appeared to meet our case definition. Ten of the 70 could not be interviewed because they had died, 1; moved, 2; could not be found, 2; were too ill to be interviewed, 2; or refused to be interviewed, 3. Of the 60 cases who had interviews, 3 were excluded because they did not meet our study definition of homosexuality, and 7 were interviewed too late in the study for us to obtain controls. The remaining 50 cases (39 with Kaposi's sarcoma, 8 with pneumocystis pneumonia, and 3 with both) who met our case definition were matched with at least one control and, therefore, entered the study.

#### CONTROL DEFINITION AND SELECTION

Controls were homosexual men who had never had Kaposi's sarcoma or pneumocystis pneumonia and had not received immunosuppressive therapy in the preceding year. Cases and controls were matched by age (within 2 years for each control group except friend controls, who were matched to within 5 years), race, and metropolitan area of residence.

Obtaining a true random sample of homosexual men to serve as controls did not appear feasible. We therefore asked health departments, private clinics, and private physicians in each study site, as well as cases, to help us sample several different groups of homosexual men. We sought four matched controls per case, selected from the following groups.

**Clinic controls:** Two homosexual men were selected from either public sexually transmitted disease clinics or private clinics providing the same services for homosexual men at the four study sites. Selection of controls was done prospectively by identifying consecutive clinic attendees who could be matched with cases by the above criteria.

**Private control:** One homosexual man was selected from the practice of an internist or family physician at each of the four study sites. Selection was by a retrospective chart review using a list of random letters. All patients who could be matched with cases and did not have chronic illnesses (defined as illnesses of more than 1 month's duration) at the time of their most recent office visit were eligible for the control group.

**Friend control:** Each case was asked to identify a homosexual male friend who had never been his sexual partner.

We had varying success in obtaining controls for the 50 cases. Of the 150 controls sought from clinics or private practices, we obtained 120 (80%): 75 of 100 from clinics and 42 of 50 from private practices. All 50 cases had at least one control from either of these groups and 38 of the 50 cases (76%) had controls from both groups. When the cases for whom one or two controls were missing were compared with those for whom all three controls were obtained, there were no significant differences with respect to the matching variables of age, race, or city of residence. Therefore, there would be no bias in the comparison of cases and controls caused by missing controls.

Only 23 (46%) of the 50 cases identified friends who served as controls. Because of their small number, friend controls were subsequently excluded from the statistical analysis of risk fac-

tors, but were retained as a control group for laboratory studies.

#### INTERVIEWS

After giving written informed consent, cases and controls were interviewed in person by a CDC physician. The same physician interviewed both a patient and all of his matched controls. Questions asked of cases concerned the period before the onset of illness; questions for a particular case's controls were matched for the same period. Topics included sociodemographic characteristics, medical history, occupational and travel history, exposure to toxic substances, use of prescription and illicit drugs, use of inhalant sexual stimulants, sexual history, and

Table 2. Frequency of Selected Variables Among 50 Homosexual Patients with Kaposi's Sarcoma and Pneumocystis carinii Pneumonia and 120 Homosexual Controls

Variable	Patients (Cases) (n = 50)	Controls	
		Clinic (n = 78)	Private (n = 42)
Sociodemographic variables			
Median duration of education, yrs	16	16	16
Income over \$20 000 in past year, %	36	37	38
Italian, Jewish, or Eastern European ancestry, %	38	22	26
Ever married, %	18	13	7
Previous illnesses, %			
Gonorrhea	86	73	74
Syphilis	68	36	36
Mononucleosis	14	17	7
Hepatitis B	14	14	21
Non-B hepatitis	48	30	33
Parasitic diarrhea	32	15	48
Prescription medication taken during past 10 years, %			
Drugs for enteric parasites*	44	19	50
Systemic corticosteroids	10	9	17
Use of illicit substances			
Median "street" drugs used†, n	6	4	4
Used nitrite inhalants, %	96	96	95
Used ethyl chloride, %	50	35	38
Sexual activity			
Median male sex partners per year, n	61	27	25
Median proportion of sex partners from bathhouses in past year, %	50	23	4
Median age at initiating regular sex with men, yrs	19	20	22
Mean feces exposure score‡	2.3	1.9	1.9
Mean sperm exposure and rectal trauma score§	2.1	2.0	2.2

\* Includes metronidazole, iodoquinol, paromomycin, and quinacrine.

† Includes marijuana, cocaine, heroin, amphetamines, barbiturates, LSD, methamphetamine, and phencyclidine.

‡ Based on participating in the following practices at least once in the past year: interviewee inserts his penis (1 point), tongue (1 point), or hand (1 point) into partner's rectum (maximum score = 3 points).

§ Based on participating in the following practices at least once in the past year: partner inserts his penis into interviewee's mouth (1 point), or inserts his penis (1 point) or hand (1 point) into interviewee's rectum (maximum score = 3 points).



family history. Interviews lasted about 60 to 90 minutes. At the end of the interview, cases and controls were also asked to donate specimens for laboratory testing. The results of this testing are the subject of a separate report (10).

#### STATISTICAL ANALYSIS

The purpose of the statistical analysis was to identify those variables potentially associated with risk of disease. The method used to conduct this exploratory analysis used the principal axes method of factor analysis for data reduction (11) and a stepwise selection procedure using a linear logistic regression equation for matched data (12, 13) (see Appendix).

#### Results

The distribution of the 50 study patients by diagnosis, city of residence, and race is shown in Table 1. Cases had a mean age ( $\pm$ SD) of  $35.1 \pm 7.3$  years (range, 21 to 53 years). Of the 150 controls who were sought, the 120 who were obtained did not differ significantly from the 50 cases with respect to the matching variables of age, race, and residence.

Cases and controls were compared with respect to selected interview variables (Table 2). Based on level of education and income, cases and controls were similar in socioeconomic status. Cases, however, were more likely than controls to have Italian, Jewish, or Eastern European ancestry and to have been married.

Histories of several infectious diseases, particularly sexually transmitted infections, were common for both cases and controls. However, compared with controls, cases were almost twice as likely to have reported a history of syphilis, and cases were also more likely to have a history of hepatitis other than hepatitis B. Histories of parasitic diarrhea and treatment for enteric parasites were more frequent for cases than clinic controls, but not private controls.

The use of various illicit substances was also relatively common for both cases and controls. However, cases were somewhat more likely than controls to have reported use of one of various "street" drugs. Almost all cases and controls reported use of nitrite inhalants for sexual stimulation, but the lifetime exposure to nitrites was greater for cases than controls. We estimated lifetime nitrite use by multiplying total months of use by average number of days of use per month. For cases, the median lifetime use was 336 days, compared with 168 days and 26 days for clinic and private controls, respectively. Cases were also more likely than controls to have reported inhaling ethyl chloride, but the lifetime use of ethyl chloride by all groups was much lower than that of nitrites.

Striking differences were observed between cases and controls in the numbers of their sexual partners. For the variable "number of male sex partners per year" (number of lifetime male partners divided by years of sexual activity before the onset of illness), the median number for cases was more than twice that for controls. A difference between cases and controls was also seen in the reported number of male sex partners in the 12 months before the onset of illness. Cases had a median of 63 such partners, compared with medians of 40 partners and 30 partners for clinic and private controls, respectively. Cases

Table 3. Significant Variables Associated with Kaposi's Sarcoma and *Pneumocystis carinii* Pneumonia Among 50 Homosexual Men as Selected by Linear Logistic Regression Analysis

Variable	Rank in Selection*		
	Grouped Factor	Ungrouped Factor	Individual Variables
Sociodemographic factors			
Italian, Jewish, or Eastern European ancestry	3	3	2
Ever married	—	2	5
Previous illnesses			
Syphilis	2	—	2
Non-B hepatitis	2	—	5
Prescription medication taken in past 10 years			
Drugs for enteric parasites	3	—	2
Use of illicit substances ever			
Number of different "street" drugs used	4	4	—
Sexual activity			
Feces exposure score	3	—	4
Sperm exposure and rectal trauma score	3	3	—
Number of male sex partners per year	1	1	1
Proportion of sex partners from bathhouses in past year	1	3	—
Age at initiating regular sex with men	—	2	2

\* Highest ranking variables are most strongly associated with illness. Dash indicates that variable was not selected.

were more likely to have met sex partners in bathhouses and to have begun regular (at least once a month) homosexual intercourse at an earlier age than controls.

Many of the individual variables were highly correlated with each other. For example, the variable "number of male sex partners per year" was significantly correlated with 10 of the 31 other variables, including meeting partners in bathhouses ( $p < 0.0001$ ), history of syphilis ( $p < 0.0001$ ), use of "street" drugs ( $p < 0.02$ ), and use of nitrite inhalants ( $p < 0.001$ ).

Table 3 shows the significant variables associated with Kaposi's sarcoma or pneumocystis pneumonia as selected by linear logistic regression analyses of grouped factors, ungrouped factors, and individual variables. To appear in the table, variables had to be important elements (that is, a factor coefficient greater than 0.2) of the grouped or ungrouped factors selected in the logistic regression analysis. (Factors selected by the forward and backward procedures were identical.) If the variable was an important element of one type of factor but not both, it appears in the table only if it was also selected in the supplementary analysis of individual variables. For each of the three selection procedures shown in the table, variables are ranked in order of selection (that is, a variable ranked "1" is most strongly associated with illness). An equal



Table 4. Frequency of Component Variables Significantly Associated with Kaposi's Sarcoma and *Pneumocystis carinii* Pneumonia in 50 Homosexual Patients and 120 Homosexual Controls

Variable	Patients (Cases) (n = 50)	Controls	
		Clinic (n = 79)	Private Practice (n = 42)
		%	
Ancestry			
Italian	20	9	7
Jewish	12	8	17
Eastern European	12	12	12
Medication for enteric parasites*			
Metronidazole	25	10	29
Iodoquinol	32	15	43
Paromomycin	12	5	35
Quinacrine	14	2	1
"Street" drugs†			
Marijuana	88	89	93
Cocaine	66	51	60
Heroin	10	8	5
Amphetamines	70	46	52
Barbiturates	32	22	26
LSD	64	44	45
Methaqualone	60	41	50
Phencyclidine	44	37	38
Exposure to feces during sex‡			
Inserted penis into partner's rectum	98	95	88
Inserted tongue into partner's rectum	78	64	62
Inserted hand into partner's rectum	52	33	38
Exposure to semen or rectal trauma during sex‡			
Partner's penis in interviewee's mouth	98	99	100
Partner's penis in interviewee's rectum	94	88	95
Partner's hand in interviewee's rectum	18	13	21

\* Medication taken in the past 10 years.

† Street drugs ever used.

‡ Exposure at least once in past year.

ranking of several variables means that they had approximately equal importance. All the variables shown were positively correlated with illness.

The variables most strongly associated with Kaposi's sarcoma or pneumocystis pneumonia were those related to number of male sex partners and to meeting such partners in bathhouses. The variable "number of male sex partners per year" was an important element in the highest ranking grouped factor and ungrouped factor and was also the variable selected first in the analysis of individual variables. Also strongly associated with illness was the variable "proportion of sex partners from bathhouses." Although other variables shown in Table 3 were significantly associated with Kaposi's sarcoma and pneumocystis pneumonia, they were less important than variables that directly reflected sexual activity with large numbers of male partners.

Several of the variables significantly associated with Kaposi's sarcoma and pneumocystis pneumonia were combinations of responses to different questions. To aid in the interpretation of these variables, Table 4 shows

frequency distributions for the component variables used in combination for the multivariate analysis. Differences between cases and controls regarding ancestry were mainly due to the higher frequency of Italian ancestry in cases. This difference was entirely the result of a difference between patients with Kaposi's sarcoma (26% Italian ancestry) and their matched controls (9% Italian ancestry). Although the variable concerning use of medication for enteric parasites was significant, no more than one third of the cases had used any one of the drugs in the previous 10 years, and the frequency of use by cases was lower than by private controls. Cases were more likely than controls to have used various "street" drugs at least once in their lives. However, no one drug was "ever used" much more often by cases than controls. The only drug used an average of more than once a month was marijuana. Median use of marijuana was eight times per month for cases and three times for persons in each control group.

Reported frequencies of participation in sexual practices associated with possible exposure to feces, semen, or rectal trauma are also listed in Table 4. Cases were more likely than controls to have reported inserting their tongue ("rimming") or hand ("fisting") into a partner's rectum at least once during the year before onset of illness. Because cases had had more sex partners per year than controls, their total number of anal exposures was also greater than for controls. The differences are small between cases and controls in the frequency of taking the receptive role in "fisting," oral, or rectal intercourse.

As previously noted, cases had greater exposure to nitrate inhalants than controls. A variable concerning lifetime exposure to inhaled nitrates was an important element of the grouped factor ranked fourth in the linear logistic regression analysis. This variable, however, was not an important element in any of the highly ranked, ungrouped factors and was not significant in the analysis of individual variables.

We asked cases and controls if they obtained nitrites as ampules (pharmaceutical grade isoamyl nitrite), labeled bottles, or unlabeled bottles. Based on an analysis of 21 samples of labeled or unlabeled organonitrites collected in New York, San Francisco, and Atlanta in 1981, the last two sources of nitrite were found to contain either isoamyl or butyl nitrite (Liddle JA, Holler JS, and Hill RH. Centers for Disease Control. Unpublished data). Cases and controls were similar with respect to the proportion of their use of nitrites from each of these three sources. For cases, the mean proportion of nitrite use from ampules, labeled bottles, and unlabeled bottles was 23%, 38%, and 39%, respectively, compared with 22%, 43%, and 35% for controls.

The same analytic procedure used to compare all 50 cases with the 120 matched controls was used to compare the 39 cases who had only Kaposi's sarcoma to their 96 matched controls. The variable most strongly associated with Kaposi's sarcoma was "number of male sex partners per year." The other significant variables were also similar to those seen for all 50 cases, although there were small differences in the relative ranks of these variables.



## Discussion

In this exploratory case-control study, the element of homosexual lifestyle most strongly associated with the occurrence of Kaposi's sarcoma and pneumocystis pneumonia was a history of sexual contact with large numbers of male partners. Bathhouse attendance, which facilitates meeting large numbers of partners, was also important. Other significant risk factors included a history of syphilis and hepatitis other than hepatitis B and the use of various illicit substances. A similar lifestyle has been described in several clinical and laboratory studies of Kaposi's sarcoma and pneumocystis pneumonia in homosexual men (5, 14-16) as well as in another case-control study of homosexual men with Kaposi's sarcoma (17).

Differences between cases and controls were seen, despite intentional selection of controls from homosexually active populations and possible misclassification of some controls. Regarding selection, we found large differences in sexual activity, despite the selection of two thirds of the controls from sexually transmitted disease clinics, a group expected to have many sexual partners. Regarding misclassification, when we began this study, we assumed that a homosexual man who did not have Kaposi's sarcoma or pneumocystis pneumonia would not have acquired immunodeficiency and, therefore, could be selected as a control. Subsequent reports have shown, however, that some apparently healthy homosexual men have abnormalities of cellular immunity (18-20). We confirmed the presence of such abnormalities, defined as diminished numbers of T-helper/inducer cells or abnormal mitogen or antigen responses in a lymphocyte transformation assay, in four of the 22 controls we studied (10). If these immunologic abnormalities represent another manifestation of the acquired immune deficiency syndrome, then some of the controls may have been misclassified and may have shared the risk factors for the syndrome with the cases. This possibility is currently being evaluated. However, the expected impact of these potential problems in control selection and classification would be to minimize differences between cases and controls rather than to create false differences.

Our study was largely a study of cases with Kaposi's sarcoma rather than those with pneumocystis pneumonia. This focus was a consequence of the small number of living homosexual men with pneumocystis pneumonia when the study started. Homosexual men with Kaposi's sarcoma and pneumocystis pneumonia have similar immunologic abnormalities, although those patients with pneumocystis pneumonia alone tend to be more severely immunosuppressed (6-8, 16). Three patients had both Kaposi's sarcoma and pneumocystis pneumonia at the start of our study, and two others who had Kaposi's sarcoma at the time of their interview were subsequently reported to have developed pneumocystis pneumonia. Until a larger number of cases with pneumocystis pneumonia can be studied and analyzed separately from those with Kaposi's sarcoma, the degree of similarity in risk factors for the two diseases cannot be fully established.

Although particular lifestyle risk factors were significantly associated with the occurrence of Kaposi's sarco-

ma and pneumocystis pneumonia among homosexual men in this study, a specific cause of this occurrence was not identified. Sexual activity itself may result in exposure to semen. Although inoculation of syngeneic and allogeneic spermatozoa into mice has been reported to cause immunosuppression (21), this phenomenon has not been described in humans. Histories of syphilis and non-B hepatitis were significantly associated with Kaposi's sarcoma and pneumocystis pneumonia, and laboratory studies also showed a higher prevalence of antibody to *Treponema pallidum* and hepatitis A virus in cases than controls (10). Nonetheless, these findings may simply be indicators of a sexually active lifestyle, which includes large numbers of sexual partners and fecal or anal-oral exposure, rather than causal clues. Similarly, the use of illicit substances was commoner for cases than for controls. However, no one substance seemed more important than any other. This pattern of substance abuse may be another indicator of the lifestyle shared by the patients.

We were not able to confirm the findings of Marmor and colleagues (17) who reported a strong association between amyl (but not butyl) nitrite exposure and the development of Kaposi's sarcoma in 20 homosexual men in New York City. In our study, nitrite exposure emerged as a relatively unimportant variable in the multivariate analysis. Further, during pretesting of our questionnaire we found that most of the cases and controls did not specifically know if they used amyl nitrite or butyl nitrite; rather, they described their nitrite use in terms of ampules and labeled or unlabeled bottles.

The occurrence of the acquired immune deficiency syndrome in heterosexual intravenous drug abusers (7, 22, 23) and hemophiliac patients (24) has suggested the possibility that the immunodeficiency may be caused by an infectious agent transmitted through blood or blood products. Intravenous drug use was uncommon for the homosexual cases we studied. However, rectal mucosal lesions, usually including punctate bleeding points, have been reported to occur in homosexual men with persistent hepatitis B virus infection (25). Hepatitis B surface antigen can be detected in specimens taken from the lesions and in feces. Thus, parenteral transmission of infectious agents carried in blood can occur during sexual activities involving anal exposure. If an infectious agent, carried in blood, is found to play a role in the development of acquired cellular immunodeficiency, then the large number of sex partners and anal exposures seen among patients with Kaposi's sarcoma and pneumocystis pneumonia in our study would have placed them at increased risk for exposure to such an agent. The hypothesis that a sexually transmitted infectious agent plays a causative role received support from the recent description of a "cluster" of sexually related homosexual patients with Kaposi's sarcoma and pneumocystis pneumonia in southern California (26).

The apparent association of Italian ancestry with Kaposi's sarcoma in our study is of interest because of the known association of Italian ancestry and "classic" Kaposi's sarcoma of elderly men (27). Friedman-Kien and associates (16) reported that both homosexual men with



Kaposi's sarcoma and heterosexual men with "classic" Kaposi's sarcoma in New York City have an increased frequency of the HLA-DR5 antigen compared with ethnically unmatched controls. Because this HLA type is relatively common among Italians (the gene frequency is 0.199; the phenotype frequency is 0.36) (28), matching for ethnicity would be valuable in future studies to explore the source of this association.

We conclude that the occurrence of Kaposi's sarcoma and pneumocystis pneumonia in the homosexual men we have studied is associated with certain aspects of their lifestyle. Although the number of sexual partners seems to be the most important risk factor, we cannot exclude the possibility that other highly correlated variables, such as illicit drug use, play some role in the development of these illnesses. The possible risk factors identified in this study should be examined in more detail in future studies. However, the meaning of epidemiologic risk factors for Kaposi's sarcoma and pneumocystis pneumonia may not become fully clear until laboratory investigations discover the cause of the underlying acquired immunodeficiency.

## Appendix

To identify variables potentially associated with risk of diseases, the data of the 30 cases designated as having Kaposi's sarcoma, pneumocystis pneumonia, or both were compared with those from the 120 controls from clinics and private practices. In addition, the variables of the subset of 39 cases with Kaposi's sarcoma and those of their controls were analyzed separately; there were too few cases with pneumocystis pneumonia or both illnesses to be analyzed separately.

The limited number of cases necessitated reducing the 130 variables on the questionnaire to a smaller number of variables for analysis. By combining variables and eliminating variables with low dispersion (for example, if all cases and controls answered "no" to a question), 32 study variables were created. To reduce further the number of variables for analysis, we used factor analysis (principal axes method) (11). Each factor is a weighted combination of variables. For interpretation of a factor, those variables with weights (coefficients) having an absolute value of 0.2 or greater were defined to be the most important elements in the factor.

Two analytic approaches were used: grouped and ungrouped factor analysis. In the first approach, grouped factor analysis, the 32 variables were classified into four categories: sociodemographic, illness and therapy, use of illicit substances, and sexual behavior. For each category of variables, a set of significant factors was selected (that is, the variance of each factor selected was greater than or = 1). This approach facilitates the interpretation of factors, but ignores the correlation structure between variables in different categories. In the second approach, we applied ungrouped factor analysis to the entire set of 32 variables. This approach considers the correlation structure among all 32 variables, but may produce factors that are difficult to interpret. Fourteen factors were obtained using grouped factor analysis and 12 were obtained using ungrouped factor analysis.

Subsequently, a forward stepwise selection procedure using a linear logistic regression equation for matched data (12, 13) was used to select those grouped and ungrouped factors that were important in the development of Kaposi's sarcoma or pneumocystis pneumonia. Grouped and ungrouped factors were analyzed separately. First, a separate linear logistic regression equation was fitted for each factor. From each equation, the value of maximized log likelihood, a measure of the strength of association between the factor and the probability of developing illness, was determined. Once the factor with the highest maximized log likelihood had been found, separate linear logis-

tic regression equations were fitted to all pairs of this factor and each other factor. The equation with the largest value of maximized log likelihood was selected, so that the new factor in the equation had the second strongest effect on developing illness. Adding one factor at a time, the preceding procedure was repeated until the increase in maximized log likelihood was no longer significant at the 5% level (of  $\frac{1}{2}$  chi square with one degree of freedom). The final equation contained all factors significantly associated with illness; the relative strength of association was determined by the order in which the factors were selected.

For the backward selection procedure, a linear logistic regression equation was fitted to the entire set of grouped or ungrouped factors and the value of the maximized log likelihood was calculated. Then, separate equations were fitted to sets containing all but one factor. The factor absent in the set with the smallest reduction in the value of maximized log likelihood (relative to the maximized log likelihood of the entire set) was determined to be the least significant factor. The procedure was then repeated until the removal of a factor produced a reduction in the value of the maximized log likelihood which was significant at the 5% level (of  $\frac{1}{2}$  chi square with one degree of freedom). The resulting set contained all factors significantly associated with illness.

Subsequently, we applied the forward selection procedure to the set of 32 individual variables. However, because of the small sample size, this analysis of individual variables is viewed as supplementary to the analysis of factors. The small sample size also prevented the use of the backward selection procedure on individual variables.

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Period	Sexual status tested (%)		
	Homosexual men	Heterosexual men	Heterosexual women
Jan - March, 1983	514/2110 (24.4)	89/2572 (3.4)	139/1311 (10.6)
Jan - March, 1985	311/2163 (14.4)	278/2539 (10.9)	165/1373 (12.0)

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**SIR,**—Recent reports have indicated that passive (receptive) anal intercourse may be a significant risk factor for acquired immunodeficiency syndrome (AIDS).<sup>1,2</sup> In our study of 50 homosexual men with AIDS and 145 age, race, and city-of-residence matched homosexual men without AIDS,<sup>3</sup> we asked many questions about sexual partners and specific sexual activities. Included was the question, "Considering all the episodes of sexual contact with male partners during the past year, about what percent of these episodes have involved . . . [your] partner putting his penis in your rectum?" Responses to this question about anal intercourse ranged from 0 (3 patients and 13 controls) to 100% (3 patients and 6 controls).

When responses from the 40 patients were compared with the responses of all 115 controls (including 23 personal friends who were not sexual partners of patients, 41 patients of private physicians who were not chronically ill, and 58 patients of public health clinics who had sought medical service for sexually transmitted diseases), no significant differences were found. Similarly, differences of means in parasympathetic and interoceptive tests by Student's *t* test were not significant when AIDS patients (mean 4.7%) were compared with their friends (13%) or with private practice (40%) or public clinic (34%) controls. When analysed by the method of Mantel,<sup>4</sup> no differences were detected in the amount of parasympathetic and interoceptive (some <10%, >10%, and >70%) reported by the four categories of respondent.

Although no differences were discovered for the proportion of passive and exposures reported by patients and matched controls, the interaction of proportion of passive and exposures and number of different male partners in the year before onset of symptoms in patients may have been an important risk factor for AIDS. According to the *t*-test results, patients had significantly more partners insert penises into their rectums (mean = 9.2 partners) than their friends (5.7), private practice controls (2.8), or public clinic controls (6.1). However, cross tabulation analyses indicated that the relation between the interactive variable and AIDS was not significant at the 95% level of confidence.

Finally, a series of stepwise logistic regression analyses was done to assess the relative importance of the interactive variable (passive anal intercourse times number of male partners) as a risk factor for

**AIDS.** Variables that separated AIDS patients from other homosexual men included a history of syphilis, large number (>1000) of lifetime partners, inserting a fist into the rectum of a sexual partner, and meeting sexual partners in bath-houses. Any one or more of these variables had been entered into logistic regression equations, the number of male partners who had insertive penises into the rectums of respondents was not significantly associated with AIDS at the 95% level of confidence.

In our study, passive anal intercourse did not appear to put homosexual men at increased risk for developing AIDS. However, AIDS is caused by a transmissible agent, the agent may be spread from an infected host to a susceptible partner during certain sexual activities. As is the case with syphilis, hepatitis B, and other sexually transmitted diseases, having a large number of different partners seems to increase the chances of acquiring AIDS. Intimate sexual contact with partners who might have AIDS should be avoided. Furthermore, homosexual men should be aware that the risk of acquiring AIDS increases with an increasing number of different sexual partners.

AIDS Active,  
Center for Infectious Diseases,  
Centers for Disease Control,  
Atlanta, Georgia 30333, USA

WILLIAM W. DAVIS  
HAROLD W. JAFFE  
JAMES W. CLEGG

heavis ni cōc

## FOOD ALLERGY

**Sir,** We appreciate the comments of Dr Rappere (July 2, p. 1259) about our article *Food Allergy: How Much in the Mind?* (June 1, 1259). However, some of her criticisms are based on erroneous assumptions about how we did the study, which was designed to seek, but failed to find, evidence that psychological symptoms are the direct result of food hypersensitivity.

We agree that many organic adverse reactions to food are immunologically mediated. This is why we did not use the absence of skin reactions or response to cromoglicate to "prove" that patients did not react clinically, as Ruppert suggests. We only used these features as positive evidence of food hypersensitivity, and supporting the probable presence of IgE-mediated allergy. If they were not positive, we tested for hypersensitivity (of unknown mechanism) by double-blind provocation with the same food, as recommended by open testing.

Ruppert suggests that the double-blind tests we did could have been fairly classified as negative because of incorrect dosing, food, or improper spacing of individual provocations: we gave amounts of food in double-blind tests, similar to those which produced positive responses on open testing in the same patients at similar time intervals. We accept that provocation tests can be obscured by sensitivity to "placebo" substances, but doubt this explains our results. None of our patients reacted adversely to any particular placebo substance during double-blind tests: the same patients tolerated the same substances on open testing. We doubt that testing could remain double-blind if distilled water was the only vehicle for several grams of solid material.

Ruppert seems to imply that psychological symptoms, if understood can never be psychosomatic, while accepting that some symptoms may be. The evidence for psychosomatic reactions is very strong in some of our patients, who "reacted" every time they knew they were getting a particular substance, but who did not respond to an identical preparation when they did not know what contained. Subsequently, the "allergies" of some of these patients were cured by direct treatment of their psychosomatic disturbance.

However one interprets our other results, there seems little doubt that dietary changes resulting from the diagnosis of food allergy (whether correct or not) are often potentially more harmful than the disease they are designed to treat. We are disturbed by the frequency with which we now see patients on dangerous diets, sometimes

5. Darrow WW, Barrett D, Jay K, Young A. The gay report on sexually transmitted diseases. *Am J Pub Health*. 1994; 74: 1004-11.

medical advice. A severe moderate eczema, whose protein, calcium, and vitamins should only be prescribed only with supervision from

Department of Medicine,  
University Hospital of South M  
Manchester M20 9LB  
Department of Esophagology,  
University of Leeds  
Leeds LS2 9JT  
Birmingham & District Cancer C

## SPACING, CROWD

S.S. Prolonged breast-feeding associated with better health factor for child health's infections increases simultaneously. <sup>3,4</sup>

[illegible][illegible]



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1 textbook on Preventive Medicine and Public Health.

2 3. In my capacity as Chief of the Infectious Disease  
3 Section for the State Department of Health Services, I am the  
4 state epidemiologist. Thus, I am responsible for the statewide  
5 management and control of infectious diseases of public health  
6 significance. The state epidemiologist's primary responsibility  
7 in the control of infectious disease is surveillance, which  
8 involves determining what the situation is and what the extent of  
9 the problems are. If control of a disease is possible, then the  
10 state epidemiologist is also responsible for developing control  
11 measures, seeing that these measures are implemented, and  
12 evaluating their effectiveness. In performing my control  
13 function, I clearly have to identify risk factors, which can be  
14 defined simply as factors which one group or individual has which  
15 increases the chances of acquiring a particular disease or  
16 problem in comparison with another group or individual. I then  
17 try either to minimize these risks or to eliminate them.

18 4. As the state epidemiologist, I have been involved in the  
19 control of just about all infectious, communicable diseases in  
20 California. In particular, my unit has been involved in the  
21 investigation and unraveling of the epidemiology of infant  
22 botulism and we still have some research studies going on in that  
23 area. All infectious diseases are important in my estimation.  
24 But the ones that I have worked on in the past decade that have  
25 tremendous public health impact would be influenza, hepatitis,  
26 toxic shock syndrome, infant botulism and Legionnaire's disease.



1 I currently supervise a unit consisting of about five or six  
2 persons who spend full time on Acquired Immune Deficiency  
3 Syndrome ("AIDS"). This staff includes program managers, field  
4 investigators and statisticians.

5 5. We maintain very close contact with the Center for  
6 Disease Control ("CDC") in Atlanta. Before the CDC published its  
7 first report on AIDS in 1981, I received a call from someone  
8 there concerning cases of pneumocystis pneumonia ("PCP") in a  
9 couple of homosexual men in New York City, I believe. The CDC  
10 was just starting to document this problem and not too much was  
11 known about it at the time. But these cases were interesting  
12 because PCP is a disease that up to that point had been  
13 documented and reported only in individuals whose immune systems  
14 were in a compromised state. These new cases of PCP were  
15 occurring in apparently healthy homosexual men. At that point,  
16 the problem with a possible immuno-compromised state was not  
17 recognized, but the cases were an initial signal that the problem  
18 was about to unfold. Since that time, there has been rapid  
19 documentation that AIDS was first recognized around 1981 and the  
20 incidence of the disease has increased progressively every year  
21 since then.

22 6. In about 1982, AIDS first became recognized as a  
23 possible infectious disease. As part of my responsibilities, I  
24 then started statewide surveillance to gather information on this  
25 disease in California. I recall that it was in about March,  
26 1983, that we declared AIDS to be a reportable disease in

1 California under Section 2503 of the California Administrative  
2 Code, which is a regulation requiring unusual diseases to be  
3 reported. We have continued to use this regulation so that we  
4 can keep monitor the spread of the disease.

5 7. In California, AIDS is concentrated in two primary  
6 localities - Southern California, in the Los Angeles area, and  
7 the Bay Area, primarily around San Francisco. However, with  
8 respect to its actual incidence, AIDS is a greater problem in the  
9 San Francisco area. I have seen figures indicating that anywhere  
10 from 60 to 70 percent of gay men who have been tested in San  
11 Francisco have been exposed to or have been infected with the  
12 presumed AIDS agent. In my opinion, this is rather high compared  
13 with other localities. I do not believe the studies are complete  
14 in those other areas, but the San Francisco rate is one of the  
15 highest of which I am aware.

16 8. In my professional capacity, I am required to keep  
17 abreast of all infectious disease problems. With respect to  
18 AIDS, I try to keep up as much as possible, although I am not  
19 spending full time on AIDS as a lot of other investigators are  
20 and as some members of my staff are. From the published studies  
21 that I have seen, there is no question that AIDS is caused by an  
22 infectious virus that has been recently identified. Transmission  
23 of that virus from person to person appears to be very similar to  
24 the mode of transmission of the hepatitis B virus. Thus, we  
25 believe that transmission is percutaneous, which means that the  
26 virus has to either be injected through the skin or penetrate the



1 mucous membrane. This can occur through blood transfusions,  
2 needle sticks, and the like. The likelihood of a virus  
3 penetrating the mucuous membrane is increased by trauma to the  
4 mucous membrane. Thus, in sexual activity (where basically two  
5 mucous membranes are brought into contact with each other and  
6 then rubbed vigorously), if the virus is present it can be  
7 transmitted from one person to another.

8         9. The data, to date, report a high incidence of the AIDS  
9 virus in homosexual men, which suggests that homosexual activity  
10 plays a role in its transmission. Although there are some  
11 reports indicating that occasionally the virus might be  
12 transmitted through heterosexual activities, those reports have  
13 been rare. From my review of the data reported so far, I have  
14 concluded that sexual activity is a risk factor which increases  
15 with the numbers of episodes and contacts. I would say that the  
16 greater the number of sexual contacts a person has, the greater  
17 the chance he or she has of becoming infected with the virus.  
18 Whether sexual activity in and of itself is sufficient for the  
19 development of AIDS in that individual is something that is still  
20 being studied. However, we do know that health care workers who  
21 may be infected with the AIDS virus are not at as high a risk of  
22 developing AIDS as homosexual men. Therefore, whether multiple  
23 sexual encounters in themselves may produce some depression of  
24 the immune system is an area that I think needs to be studied.

25         10. From what I have been told concerning the types and  
26 numbers of sexual contacts that take place in bathhouses, I would  
say that these activities are a risk factor for AIDS. Before

1 AIDS became a household word, I think the popular conception was  
2 that the bathhouses in San Francisco were places where anonymous  
3 multiple sexual encounters took place among homosexual men. I am  
4 unaware of any specific studies or surveys, but I have had  
5 discussions with some of our venereal disease investigators who  
6 have frequented the bathhouses, both in their official capacity  
7 and also as undercover investigators. They tell me that  
8 promiscuous sexual activities are rampant in some of the  
9 bathhouses. Personally, I cannot think of any other type of  
10 environment or situation that would match the bathhouse  
11 environment for promiscuous and frequent sexual encounters. Even  
12 parties in private residences could not generate such huge  
13 numbers of potential sexual encounters in a single evening.

14 11. Based on the evidence I have seen so far, I have  
15 little doubt that closure of the bathhouses would be a positive  
16 step in reducing the incidence of AIDS in San Francisco.  
17 Although I do not believe that this would eliminate the AIDS  
18 problem, closure would definitely help to reduce the incidence of  
19 and spread of this disease.

20 I declare under penalty of perjury under the laws of the  
21 State of California that the foregoing is true and correct.

22 Executed on October 9, 1984, in San Francisco,  
23 California.

24  
25   
26 JAMES CHIN, M.D.

2483D



# CURRICULUM VITAE

OF

JAMES CHIN, M.D.

## Personal Information

Born: November 29, 1933 - Guangdong, China  
Marital Status: Married  
Citizenship: U. S. A.

## Education

B.S. University of Michigan, 1954 (with distinction)  
M.D. College of Medicine, State University of New York, 1958  
M.P.H. University of California, 1961

## Professional Positions

1959-1960 Public Health Resident  
Berkeley City Health Department, Berkeley, California  
U.S. Public Health Service - Career Development Program  
Division of Special Health Services

1960-1961 Postgraduate studies - School of Public Health  
University of California, Berkeley - MPH Degree (Epidemiology)  
U. S. Public Health Service - Career Development Program  
Division of Special Health Services

1961-1962 International Research Fellow, Hooper Foundation  
University of California Medical Center, San Francisco  
International Center for Medical Research and Training (ICMRT)

1962-1964 Epidemiologic studies at the Institute for Medical Research  
Kuala Lumpur, Malaysia - ICMRT

1964-1968 Research Epidemiologist, Viral & Rickettsial Disease  
Laboratory  
California State Department of Public Health

1968-1970 Head, General Epidemiology Unit, Bureau of Communicable  
Disease Control, California State Department of Public Health

\*1969 Lecturer in Epidemiology, U. C. School of Public Health,  
Berkeley, California

\*1970 Chief, Infectious Disease Section, California Department of  
Health Services

\*Denotes current or continuing appointment and/or membership

*Exhibit 1*

Professional Societies or Associations

- \*American Public Health Association (APHA), 1959
- \*Northern California Public Health Association, 1959
- \*Society for Epidemiologic Research, 1974

Scientific or Professional Committees

- U. S.-Mexico Tuberculosis Commission, 1969
- Chairman, Bacterial Disease Committee - State and Territorial Epidemiologists, 1970-1971
- APHA Epidemiology Program Planning Committee, 1970-1971
- \*APHA Committee on Control of Communicable Diseases in Man, 1973
- Chairman, Panel on Inhospital Surveillance and Alerting for Infections Related to Large Volume Parenterals, 1973
- Centers for Disease Control (CDC) Advisory Committee on Evaluation of Immunization Survey, 1974-1975
- CDC Expert Panel Meeting on Poliomyelitis, 1975
- Expert Advisory Panel - University of Washington Surveillance Study, 1977
- Armed Forces Epidemiological Board, 1977-1983
- National Immunization Work Group on Research and Development of Vaccines, 1977
- CDC Program and Policy Advisory Committee, 1977-1978, 1980
- Chairman, HEW Work Group on Immunization to Develop Prevention Objectives for the 1980's, 1979
- \*National Advisory Committee on Immunization Practices (ACIP), 1979
- National Academy of Sciences, Institute of Medicine (IOM) Committee on Toxic Shock Syndrome, 1981-1982
- \*Chairman, National Advisory Committee on Immunization Practices (ACIP), 1982
- \*IOM Committee on National and International Priorities for Vaccine Development, 1982
- \*Consultant on Infectious Diseases to the Conference of State and Territorial Epidemiologists, 1983

. \*Denotes current or continuing appointment and/or membership



Elected Positions and Awards

\*Diplomate, American Board of Preventive Medicine, 1966

\*American Epidemiology Society, 1973

Executive Committee, Association of State and Territorial Epidemiologists, 1973-1980

Epidemiology Section Council, APHA, 1975-1978

Distinguished Member Award, Northern California Public Health Association, 1977

President, Conference of State and Territorial Epidemiologists, 1977-1978

International Health Activities

International Research Fellow, Hooper Foundation, UC Medical Center and the Institute for Medical Research, Kuala Lumpur, Malaysia, 1961-1964

U. S. - Mexico Tuberculosis Commission, 1969

World Health Organization Travel Fellowship to Europe to Review Immunization and Surveillance Programs, 1973

Team Leader of a design team to prepare a project paper for a USAID funded Childhood Communicable Disease Control Program in Sub-Sahara Africa, Feb-March 1980

Chairman of the Centers for Disease Control (CDC)/Association of Schools of Public Health (ASPH) Working Group on International Health, 1980-1981

Short Term WHO Consultant to the Ministry of Health, Burma, to evaluate the public health importance of measles, May 8-June 19, 1983

Invited participant to attend the Republic of China's National Development Seminar, to review and to make recommendations regarding the infectious disease surveillance system in Taiwan, July 18-29, 1983

\*Denotes current or continuing appointment and/or membership

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20. Chin J, Trudeau MJ: Immunization. Cal Health 29:14-16, 1972
21. Chin J, Magoffin RL, Lennette EH: The need for routine rubella antibody testing of women. Cal Med 116:9-13, 1972
22. Werner SB, Roberto RR, Chin J: Importation of Shiga dysentery into California - Clinical and Public Health Significance. Cal Med 116:20-24, 1972
23. Chin J, Morrison F: Epidemiology of Viral Hepatitis in California, 1950-1970. Cal Med 118:24-27, 1973
24. Werner SB, Chin J: Botulism - Diagnosis, Management and Public Health Considerations. Cal Med 118:84-88, 1973
25. Chin J: Zoster Immune Globulin (ZIG) and Mumps Vaccine. Cal Med 118:58-60, 1973
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38. Chin J: Raw Milk: A continuing vehicle for the transmission of infectious disease agents in the United States. J Infect Dis 146:440-441, 1982
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## PUBLICATIONS

### BOOKS AND MANUALS

JAMES CHIN, M.D.

1. Chin J, Morrison FM (eds): Guidelines for Analysis of Communicable Disease Control Planning in Developing Countries, Department of Health, Education, & Welfare, Office of International Health, (International Health Planning Methods Series #1), DHEW Publication No. (PHS) 79-50080
2. Chin J, Section editor (Communicable Diseases) for Last J (ed): Maxcy-Rosenau Public Health and Preventive Medicine, 11th ed, New York; Appleton-Century-Croft, 1980
3. Chin J: Control of Communicable Diseases. Chapter in Last J (ed) Maxcy-Rosenau Public Health and Preventive Medicine. 11th ed, New York; Appleton-Century-Croft, 1980
4. Arnon SS, Chin J: Botulism. Chapter in Top FM, Wehrle PF (eds) Communicable and Infectious Diseases. 9th ed. St. Louis: Mosby, 1981
5. Chin J: Associate editor for the 13th edition, Benenson AS (ed) of the American Public Health Association's Manual for the Control of Communicable Diseases in Man, 1981
6. Chin J, Constantine DG: Rabies. Chapter in Last J (ed) Maxcy-Rosenau Public Health and Preventive Medicine, 12th ed, New York; Appleton-Century-Croft, (projected publication in 1985)
7. Chin J: Relapsing Fever. Chapter in Last J (ed): Maxcy-Rosenau Public Health and Preventive Medicine, 12th ed, New York; Appleton-Century-Croft (projected publication in 1985)
8. Chin J: Control of Communicable Diseases. Chapter in Last J (ed): Maxcy-Rosenau Public Health and Preventive Medicine, 12th ed, New York; Appleton-Century-Croft (projected publication in 1985)
9. Chin J: Section editor (Communicable Diseases) for Last J (ed): Maxcy-Rosenau Public Health and Preventive Medicine, 12th ed, New York; Appleton-Century-Croft (projected publication in 1985)
10. Chin J: Associate editor for the 14th edition, Benenson AS (ed) of the American Public Health Association's Manual for the Control of Communicable Diseases in Man (projected publication in 1985)
11. Chin J: Health Information for International Travel. Chapter in Kass EH (ed): Current Therapy in Infectious Diseases, 2nd ed, Boston; Infectious Disease Society of America (projected publication in 1985)



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1 In July of 1983, I was transferred from the Mission Mental  
2 Health Center to the Department of Public Health's central office  
3 where I was assigned primary responsibility for organizing the  
4 AIDS educational campaign of the Department of Public Health  
5 directed at the affected homosexual population in San Francisco.  
6 My present position is Coordinator of the AIDS Activity Office.

7 Our primary function has been to develop programs and  
8 contracts with community agencies to educate the affected  
9 population so that they could make informed, intelligent  
10 judgments to protect themselves and the community from AIDS.

11 I assumed a significant role in formulating the City's  
12 educational policy designed to communicate to the gay community  
13 the nature of the disease, the types of activities that were the  
14 highest risks, those types of activities which could safely be  
15 engaged in, and the general communication with the heterosexual  
16 public regarding the nature of this disease so as to avoid  
17 unnecessary panic. In particular, I am responsible for  
18 establishing and maintaining lines of communication based on  
19 trust and confidence between the affected community and the City  
20 policy makers.

21 I. 81-82 EARLY ORGANIZATION

22 In July 1981, the Lesbian and Gay Health Services  
23 Coordinating Committee of the San Francisco Health Department  
24 began to discuss the emergence of a new epidemic which later  
25 would be known as AIDS. The committee began to plan, organize,  
26 coordinate, educate and lobby for community services at this time



1 with community groups, agencies and businesses. Meetings were  
2 held to teach people how to identify the two diseases known at  
3 that time: Kaposi's Sarcoma and Pneumocystis carinii pneumonia.

4 A. A plan was developed by the committee outlining the  
5 responsibility of various parts of the Health Department to  
6 provide services. The first "Screening Protocol and Resource  
7 and Referral List" manual was prepared for distribution to  
8 service providers. In July 1982, the AIDS Coordinating Committee  
9 was organized, and was composed of people involved and interested  
10 in the provision of services from various community agencies,  
11 groups and units of the Health Department.

12 B. Specialized training was developed and offered to  
13 health care providers who were professionally involved with the  
14 epidemic and who needed specific training to understand the  
15 nature of the epidemic, infection control procedures and problems  
16 of the affected population.

17 II. INITIAL PROGRAM

18 In December 1982, the first City and County of San  
19 Francisco supplemental budget was processed and included the  
20 following educational components at the San Francisco AIDS  
21 Foundation. Funds to provide for:

- 22 1. A Hotline: staffed with volunteers to respond to  
23 questions and provide information to the general  
24 population and the populations "at risk." The hotline  
25 also included a Medical Callback Team to follow up on

26 / / /

1 people who had specific problems and needed referral  
2 for evaluation.

3 2. Education for Health Providers: To expand  
4 programs presenting basic information about the  
5 diseases, infection control procedures and  
6 psycho-social issues of people with the disease.

7 3. Public Forums: Funding for a series of public  
8 forums to inform the general population that they were  
9 not at risk for AIDS (reducing fear), and to provide  
10 more specific information to the population at risk.

11 III. SERVICES EXPANDED

12 In April 1983, a second supplemental was submitted to,  
13 among other things, increase the capacity of the AIDS Foundation  
14 to deal with the growing epidemic. This growth had brought  
15 increased need for additional services. In September of 1982,  
16 the Foundation's Hotline handled 284 calls and provided 60  
17 medical referrals; in February of 1983, the Hotline handled 432  
18 calls and provided 117 medical referrals. The number of requests  
19 per month received by the Foundation speakers bureau had doubled  
20 since October. In addition as the level of knowledge about AIDS  
21 developed, the demand for more sophisticated educational  
22 materials also grew: it was necessary to develop a series of  
23 brochures and expand monthly forums and the number of  
24 professional trainings. As the number of cases increased, the  
25 need for expanded outreach programs became evident. The severity  
26 of the health crisis had to be communicated to the public in an



1 accurate and a responsible manner; the risk reduction guidelines  
2 had to be aggressively publicized in the communities at high  
3 risk. At the same time, the unfounded fear of casual contagion  
4 that existed in the community had to be combatted with factual  
5 information about AIDS.

6 The AIDS Activity Office was opened in July 1983 to develop  
7 and coordinate AIDS services within the department and to monitor  
8 AIDS related contracts with community agencies.

9 IV. AIDS EDUCATION AND PREVENTION ACTIVITIES

10 As a result of the combined efforts of DPH, community  
11 agencies and groups, businesses and individuals, the following  
12 was achieved:

- 13 1. Over 550,000 pieces of literature were distributed.
- 14 2. 7,870 Billboards, bus placards, bathhouse posters, Safe  
15 Sex advertisements and buttons were placed and/or distributed.
- 16 3. 218 forums, seminars, and educational meetings were  
17 held.
- 18 4. 34 radio and television presentations were made.
- 19 5. The AIDS Hotline responded to 14,900 calls with medical  
20 callback service to 2273 people.
- 21 6. Extensive outreach through the use of sidewalk tables  
22 and regular distribution of education materials to 130 gay  
23 businesses.

24 As a result of this educational effort:

- 25 1. We have reduced fear and panic in the entire population.

26 / / /

1           2. 90% of the "at risk" population know the safe sex  
2 guidelines.

3           3. San Francisco dropped from 2nd to 13th in Gonorrhea in  
4 the United States.

5           In addition, beginning in October, 1983, an educational  
6 campaign was developd for bathhouses, sex clubs and bookstores  
7 focused on informing them of the nature of the disease, its  
8 prevention and getting them to encourage clientele to participate  
9 in sexual activity that would not put them at risk of catching  
10 AIDS. The following 5-point program was outlined for bathhouses:

11           1. Display of the appropriate AIDS posters.

12           2. Distribution of a free condom with an instruction card  
13 and a brief safe sex message to each customer.

14           3. Display of current pamphlets on AIDS.

15           4. Posting of appropriate signs in the bathhouses, such as  
16 "Free Condoms Available," "Shower Before and After Sex".

17           5. Participation in and/or sponsorship of special events  
18 such as a "New Age Sex Week" being planned by the AIDS Foundation.

19           I have worked to ensure the preparation of brochures,  
20 attended various conferences in the gay community, gone to  
21 meetings of gay organizations, met with owners and operators of  
22 bathhouses, organized communication between doctors and members  
23 of the gay community. Our primary objective has been to ensure  
24 that everyone in the gay community is fully informed of the  
25 nature of this disease and the safe sex guidelines.

26       / / /



1 My experience with the gay community since the onset of our  
2 educational program leads me to conclude that a very significant  
3 percentage, in excess of 90%, of the gay and bisexual males  
4 residing in San Francisco are aware of the high risk activities.  
5 Furthermore, I am certain that all of the gay businesses we have  
6 worked with operating in the San Francisco community where these  
7 high risks behavior occur are aware of the nature of the disease  
8 and the risks involved.

9 I declare under penalty of perjury under the laws of the  
10 State of California that the foregoing is true and correct.

11 Executed on October 10, 1984 at San Francisco, California.

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14 GARY BRUCE TITUS

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1                   DECLARATION OF WILLIAM AMES ATCHLEY, M.D.

2           I, William Ames Atchley, M.D., do hereby make the following  
3 declaration in support of the Application for a Temporary  
4 Restraining Order and Order to Show Cause Re: Preliminary  
5 Injunction.

6           1.     I attended Harvard College and Harvard Medical  
7 School, and received my M.D. degree in 1946. I was at  
8 Columbia-Presbyterian Medical Center from 1946 to 1948, where I  
9 interned from 1946 to 1947 and was an Assistant in Medicine  
10 (Enzymology) from 1947 to 1948. From 1948 to 1950, I was in the  
11 Medical Corps of the United States Army and staff member at Los  
12 Alamos Scientific Laboratories in New Mexico. From 1950 to 1952,  
13 I was a Visiting Investigator and Merck Fellow at the Rockefeller  
14 Institute for Medical Research in New York City. I was a Junior  
15 Resident in Medicine at the Veteran's Administration Hospital in  
16 San Francisco from 1953 to 1954.

17           I have been associated with the University of California at  
18 San Francisco ("UCSF") since 1952. I was Assistant Resident in  
19 Medicine at the Medical Center from 1952 to 1953. From 1954 to  
20 1955, I was Chief Resident in Medicine and an Instructor in the  
21 Department of Medicine. From 1955 to 1963, I was an Assistant  
22 Professor of Medicine and Assistant Research Physician (Oncology)  
23 at the School of Medicine's Cancer Research Institute. From 1963  
24 to 1969, I was an Associate Professor of Medicine and Associate  
25 Research Physician (Oncology) at the Cancer Research Institute.  
26 From 1970 to 1971, I was an Associate Clinical Professor of



1 Medicine. A copy of my curriculum vitae is attached hereto as  
2 Exhibit 1 and incorporated herein by reference as though fully  
3 set forth.

4 2. At the present time, I am a Clinical Professor of  
5 Medicine at UCSF, and have been so employed since 1971. I am  
6 also President of the Medical Staff and a practicing internist.  
7 As President of the Medical Staff, I supervise the entire medical  
8 staff organization, which in turn is basically responsible for  
9 the quality of medical care at the hospital. Our main motivating  
10 force is to ensure that when a patient comes into the hospital,  
11 he or she feels that they are getting the very best of care that  
12 is available. To accomplish this, we have an immense structure  
13 to credential physicians, delineate their privileges, and review  
14 their applications for reappointment. We follow all of the  
15 adverse results, infection control, and utilization of the  
16 various services. We monitor very carefully the outcomes of  
17 various procedures and surgery and monitor performance to a large  
18 degree in all the other services. In other words, we monitor  
19 everything that has to do with the quality of patient care.

20 3. I first became aware of Acquired Immune Deficiency  
21 Syndrome ("AIDS") in late 1982. By early 1983, I certainly was  
22 very much aware of the possibility of AIDS impacting on persons  
23 other than members of the gay community and other specially  
24 identified groups because of a number of my patients who had  
25 received blood transfusions. I specifically recall one of my  
26 patients who, after receiving blood from a person who

1 subsequently came down with AIDS, came down with AIDS herself and  
2 eventually died from the disease. Witnessing this devastating  
3 illness was a very vivid experience for me because I could see in  
4 this person, who was not only a patient but also a neighbor and  
5 long-time friend, the day-to-day slow destruction of a human  
6 being. I am sure that it is the same for gay people, except that  
7 it is multiplied by the hundreds instead of the ones. I view  
8 AIDS as a terrible disease and a serious epidemic right here in  
9 San Francisco.

10 4. It is quite clear to me and abundantly proven that  
11 this AIDS epidemic has some of its origins in group sexual  
12 practices that have been associated with the spread of this  
13 disease. I believe that there are several sources of contagion  
14 -- perhaps up to thirty bathhouses, sex clubs and associated  
15 places that should be closed down as sources of contagion. I  
16 concede that if a person wants to kill himself in one way or  
17 another, I have no right to intervene. Perhaps one can make that  
18 argument on religious or social grounds but in the current  
19 climate of civil liberties, it is not my right to tell someone to  
20 stop destroying himself. But the situation we are facing now is  
21 not simply one where an individual is doing damage to himself,  
22 but rather is a situation that harms the entire community.

23 In a sense, an individual can cause himself to contract  
24 AIDS by engaging in behavior that is now known to be high risk.  
25 He becomes sick and then turns to the community for help. Help  
26 is freely and compassionately given by doctors, nurses, and other



1 health care professionals who, because of their nature, give such  
2 care without any consideration as to who is sick or what illness  
3 they may have. This is a terrible drain on the resources of the  
4 community because the money for hospital care, for medicine, and  
5 for the nurses and doctors has to come out of a budget. Since  
6 there is only so much money that can be budgeted, this means that  
7 the money used to take care of AIDS patients has to be taken away  
8 from other people who need assistance. For example, at the  
9 present time in San Francisco we have a crying need to help  
10 people with mental health problems. Right in the park across the  
11 street from City Hall are people who are sleeping on the ground  
12 and are totally out of it. There has been a severe cutback in  
13 Medi-Cal and other social services, and it does not seem to me to  
14 be fair for all the money to go to people who are, for all  
15 intents and purposes, knowingly putting themselves at risk of  
16 getting AIDS. At that point, the sexual behavior of the  
w.a.o. 17 individual starts to wreak havoc on the health of the community  
18 and it is up to doctors and health organizations to try to stop  
19 it by recommending the closure of sources of contagion.

20 I declare under penalty of perjury under the laws of the  
21 State of California that the foregoing is true and correct.

22 Executed on October 8, 1984, at San Francisco,  
23 California.

24  
25 William A. Atchley, M.D.  
26 WILLIAM AMES ATCHLEY

CURRICULUM VITAE

Name: William Ames Atchley

Born: New York, New York, May 17, 1922

Title: Clinical Professor of Medicine, Department of  
Medicine, University of California, San Francisco  
*President, Medical Staff*

Office: 350 Parnassus Avenue - Suite 710  
San Francisco, California 94117

Home: 1721 Mar West, Tiburon, California 94920

Education: Harvard College, 1943. Harvard Medical School,  
M.D., 1946. Intern, Medical Service, Columbia-  
Presbyterian Medical Center, 1946-47. Assistant  
in Medicine (Enzymology), Columbia-Presbyterian  
Medical Center, 1947-48. Visiting Investigator  
and Merck Fellow, Rockefeller Institute for  
Medical Research, New York, New York, 1950-52.  
Assistant Resident in Medicine, University of  
California Medical Center, San Francisco, Cali-  
fornia, 1952-53. Junior Resident in Medicine,  
U.S.V.A.H., San Francisco, California 1953-54.  
Chief Resident in Medicine, University of Cali-  
fornia Medical Center, San Francisco, California,  
1954-55.

Military Service:

Medical Corps, Army of the United States, First  
Lieutenant to Captain, 1948-50.

Professional Experience:

Staff member, Los Alamos Scientific Laboratories,  
Los Alamos, New Mexico, 1948-50. Instructor,  
Department of Medicine, 1954-55; Assistant Pro-  
fessor of Medicine, Department of Medicine, and  
Assistant Research Physician (Oncology), Cancer  
Research Institute, University of California  
School of Medicine, 1955-63; Associate Professor  
of Medicine, Department of Medicine, and Associate  
Research Physician (Oncology), Cancer Research  
Institute, University of California, School of  
Medicine, 1963-69. Associate Clinical Professor  
of Medicine, 1970-71; Clinical Professor of  
Medicine, University of California, San Francisco,  
1971-.

Exhibit 1



Honors:

Exchange Student to Westminster School, London, 1938; Harvard Prize Scholarship, 1939; Boylston Medical Society, 1944; Alpha Omega Alpha, 1946; Merck Fellow, 1950-52; Diplôme, American Board of Internal Medicine, 1958; Fellow American College of Physicians, 1962

Societies:

American Association for the Advancement of Science

American College of Physicians (Fellow)

American Federation for Clinical Research

California Academy of Medicine (President 1976)

Western Society for Clinical Research

California Medical Association

San Francisco Medical Society

Licensed to Practice Medicine:

California

New York

*American Clinical & Climatological  
Association*

*Vice President Medical Staff  
Chairman, Credentials Committee* } 1982-1983

*President, Medical Staff* 1984-1985

*Editorial Board, UCSF Magazine  
1984 -*

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1                                    DECLARATION OF GLENN MOLYNEAUX, M.D.

2            I, Glenn Molyneaux, M.D., do hereby make the following  
3        declaration in support of the Application for a Temporary  
4        Restraining Order and Order to Show Cause Re: Preliminary  
5        Injunction.

6            1. I attended college and medical school at the University  
7        of Illinois, and graduated with an M.D. degree in 1945.  
8        Subsequently, I served for almost three years on active duty as a  
9        medical officer in the United States Navy. On July 1, 1951, I  
10       completed a three-year residency in Internal Medicine in San  
11       Francisco, the first year at St. Luke's Hospital and the last two  
12       years at the Veteran's Administration Hospital. Since that time,  
13       I have practiced internal medicine in San Francisco.

14           2. At the present time, I am President of the San  
15        Francisco Medical Society and have served on its Board of  
16        Directors for close to ten years. In addition, I serve on the  
17        Commission of the Irwin Memorial Blood Bank, which functions as  
18        its Board of Directors, and on the Advisory Committee to San  
19        Francisco's Director of Public Health concerning Acquired Immune  
20        Deficiency Syndrome ("AIDS").

21           3. As a Director of the Irwin Memorial Blood Bank, I have  
22        been made aware of several instances where there was high  
23        probability that AIDS was transmitted by blood transfusion. One  
24        case involved a two year old child, who developed the disease  
25        after receiving 17 blood transfusions. Investigation revealed  
26        that one of the individuals who had donated blood received by

1 this child subsequently developed AIDS. Another recent instance  
2 involved a woman in the Bay area who received blood, developed  
3 AIDS, and subsequently died of the disease. In that case, one of  
4 the blood donors also had developed AIDS. The Board of Directors  
5 of the blood bank has investigated this problem and taken what  
6 steps it believes are feasible to reduce to a minimum the  
7 possibility of the transmission of AIDS by blood transfusion.

8 4. As President of the San Francisco Medical Society, I  
9 can report that the Medical Society supports a public health  
10 policy that will in any way assist in the control of communicable  
11 disease. At the Medical Society, we believe that AIDS is a very  
12 serious communicable disease which, as far as we can tell, is one  
13 that has a 100 percent mortality rate within a few years. It may  
14 be claimed that sex between two consenting informed adults should  
15 not be the concern of either other adults or the Department of  
16 Public Health. Personally, I do not think this view is correct,  
17 especially in places of business open to the public. Since we  
18 are as yet unable to identify carriers of AIDS, these persons may  
19 not be able to give "informed" consent. And we can have no  
20 assurance that those individuals who engage in such activity will  
21 always be truthful in their statements made to others with whom  
22 they engage in sex in the future. I therefore conclude that the  
23 control of such sexual activities is definitely within the  
24 province of the Director of Public Health.


25 5. AIDS is a disease with an estimated incubation period  
26 of years and is a disease that in all probability takes several



1 years to run its full course. During this period of time an  
2 individual usually is not productive, and very few of us have the  
3 insurance or financial background to provide for our own medical  
4 care in the case of a disease as prolonged as AIDS. Therefore,  
5 most AIDS victims sooner or later will end up as a financial  
6 responsibility of government. In my opinion, this is another  
7 reason why government should be concerned with the control of the  
8 disease.

9 I declare under penalty of perjury under the laws of the  
10 State of California that the foregoing is true and correct.

11 Executed on October 8, 1984 at San Francisco, California.

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13   
14 GLENN MOLYNEAUX, M.D.  
15 10/8/84  
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DECLARATION OF RALPH S. GOLDSMITH, M.D.

I, Ralph S. Goldsmith, M.D., do hereby make the following declaration in support of the Application for a Temporary Restraining Order and Order to Show Cause Re: Preliminary Injunction.

1. I attended the University of Maryland School of Medicine, and received my M.D. from that institution in 1954. From 1954 to 1958, I did an internship and residency at Walter Reed Army Hospital in Washington, D.C., and studied Military Medicine and Allied Sciences there from 1958 to 1959. From 1959 to 1963, I was Chief of the Metabolic Branch, United States Army Surgical Research Unit, at Fort Sam Houston and Chief of the Endocrine Clinic at Brooke Army Hospital in Texas. From 1963 to 1968, I was on the faculty of Harvard Medical School, a research associate and assisting physician at Boston City Hospital, and consultant to the United States Army Institute of Environmental Medicine and Leary Laboratory in Natick and Boston, respectively.

From 1968 to 1974, I was on the faculty of the Mayo Medical School and associated with the Mayo Clinic and Mayo Foundation, where I was Director of the Clinical Study Unit, Head of the Metabolism Research Unit, and a consultant in Endocrinology and Internal Medicine. From 1974 to 1977, I was Deputy Chairman, Department of Medicine, at the University of Texas Health Science Center in San Antonio, and was a Professor of Medicine at that institution from 1974 to 1979. I was also associated with the Audie L. Murphy Veterans Administration Hospital, where I was



1 Chief of Medical Service from 1974 to 1977 and Associate Chief of  
2 Staff for Research from 1976 to 1978. In addition, I was an  
3 attending physician at Bexar County Hospital and consultant to  
4 Brooke General Hospital in Texas from 1974 to 1979. A copy of my  
5 curriculum vitae is attached hereto as Exhibit 1 and incorporated  
6 herein by reference as though fully set forth.

7 2. At the present time, I am a Professor of Medicine and  
8 Associate Dean of School of Medicine, University of California at  
9 San Francisco ("UCSF") and Chief of Staff at the Veteran's  
10 Administration Hospital. I have been so employed since 1979.  
11 Since 1977, I have been the editor of the bimonthly journal  
12 "Metabolic Bone Disease and Related Research." Although I am  
13 employed by the Veteran's Administration and by UCSF, I am  
14 testifying herein in my individual capacity. The views expressed  
15 herein are my own and do not represent official views of either  
16 the Veteran's Administration or UCSF.

17 3. In my capacity as Chief of Staff at the Veteran's  
18 Administration Hospital, my primary responsibility is to  
19 supervise approximately 140 physicians, more than 350 nurses, and  
20 additional staff consisting of social workers, pharmacists,  
21 psychologists and a variety of other specialists. I am also  
22 responsible for overseeing all personnel activities, space  
23 assignments, miscellaneous hospital activities, and the hospital  
24 budget insofar as it involves clinical activities.

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1           4.       As Chief of Staff at the Veteran's Administration  
2 Hospital, I am well aware of the impact that the AIDS epidemic in  
3 San Francisco has had on our hospital budget. The Veteran's  
4 Administration Hospital has a prospective budget that is  
5 determined at the beginning of the year. Therefore, all funds  
6 that are allocated at the beginning of the year represent the  
7 total funds that will be available for treating all our  
8 patients. We have begun to use the diagnostic related groups  
9 ("DRGs") funding mechanism at the hospital, where funds available  
10 for treatment are based on the prior year's number of patients in  
11 the relevant diagnostic group. Therefore, we receive no  
12 additional funding during the year regardless of the number of  
13 patients we are actually required to treat in the particular  
14 diagnostic group. I estimate that the cost of caring for AIDS  
15 patients, including the cost of both diagnostic and therapeutic  
16 procedures, can exceed \$100,000 per patient over the course of  
17 the illness. Since the only DRG close to AIDS provides a  
18 budgetary allocation of approximately \$4,600 per admission, it  
19 has become clear to me that there is no conceivable way the  
20 present funding mechanism can pay for the cost of taking care of  
21 these AIDS patients.

22           The hospital currently has approximately 11,000 in-patient  
23 admissions and nearly 200,000 out-patient visits a year. Our  
24 total hospital budget for the current year is in the neighborhood  
25 of \$62,000,000. We have thirty AIDS patients, at an approximate  
26 annual cost of \$2,000,000, or \$60,000 to \$65,000 per patient.



1 Thirty patients represent less than one tenth of 1 percent of the  
2 total number of patients being treated at our hospital per year  
3 but represent about 3 percent of the entire hospital budget.  
4 Contrast this with the cost of doing coronary artery by-pass  
5 surgery, which costs us approximately \$8,500 per patient. We  
6 perform approximately 200 such procedures per year for an annual  
7 cost of about \$1.7 million. Therefore, the cost of treating  
8 thirty AIDS patients is greater than the cost of treating 200  
9 patients with coronary artery disease.

10 Current projections are that the number of AIDS patients  
11 doubles every ten months. Thus, the number of AIDS patients we  
12 can expect to be treating will exceed 60 next year and 120 the  
13 following year. At the current cost per patient, it will be  
14 impossible for the hospital to continue treating all who come to  
15 its doors without additional funding. A significant siphoning  
16 off of funds by a small number of extremely expensive patients  
17 threatens to impair our ability to care for all those patients we  
18 are responsible for treating, which means that we may have  
19 insufficient funds for all.

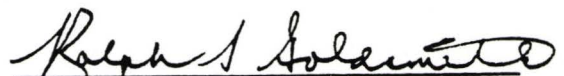
20 5. Although my primary responsibilities at present are  
21 in the capacity of a hospital administrator, I am still a  
22 practicing scientist and physician and keep abreast of the latest  
23 developments in the field of medicine. Based upon the evidence  
24 that I have seen and heard regarding transmission of the AIDS  
25 virus, and in light of the financial crisis that the disease  
26 poses for hospitals, I believe that public health officials

1 should make every effort to interact with the public in such a  
2 way as to eliminate insofar as possible all mechanisms for the  
3 transmission of AIDS.

4 I am aware of the argument that an individual has the right  
5 to get any disease he wishes. However, the reality is that once  
6 such an individual contracts AIDS, he becomes the responsibility  
7 of those hospitals that must provide the required level of care  
8 with inadequate funding. Thus, it is perfectly obvious to me  
9 that the AIDS epidemic we are facing at the present time is not a  
10 personal problem, but instead is a public problem. In my  
11 opinion, if the director of public health in a city like San  
12 Francisco were to direct his efforts towards reducing in every  
13 way possible the transmission of the AIDS virus, the long-term  
14 effect would be a reduction in the number of patients who acquire  
15 the disease. This would then enable my hospital and others like  
16 it to treat all the patients who come to our doors, rather than  
17 having to allocate a disproportionate share of our funds to a  
18 small number of patients who have participated in contracting  
19 their disease.

20 I declare under penalty of perjury under the laws of the  
21 State of California that the foregoing is true and correct.

22 Executed on October 7, 1984, at San Francisco,  
23 California.

24  
25 

26 RALPH S. GOLDSMITH, M.D.



## CURRICULUM VITAE

Name: Ralph S. Goldsmith  
Date of Birth: February 23, 1931  
Place of Birth: Baltimore, Maryland  
Nationality: U.S.  
Sex: Male  
[REDACTED] [REDACTED]

### Education and Training

- 1947-50 Franklin and Marshall College, Lancaster, PA  
B.S. in Biology and Chemistry, Magna Cum Laude, 1950
- 1950-54 University of Maryland School of Medicine, Baltimore, MD  
M.D. with Honors, 1954
- 1954-58 Walter Reed Army Hospital, Washington, D.C.  
Intern and Resident in Medicine
- 1958-59 Walter Reed Army Institute of Research, Washington, D.C.  
Course in Military Medicine and Allied Sciences

### Professional Experience and Appointments

- 1959-63 U.S. Army Surgical Research Unit, Fort Sam Houston, TX  
Chief, Metabolic Branch  
Brooke Army Hospital, Fort Sam Houston, TX  
Chief, Endocrine Clinic  
Attending Physician
- 1963-68 Harvard Medical School, Boston, MA  
Instructor to Assistant Professor of Medicine  
Thorndike Memorial Laboratory, Boston City Hospital  
Research Associate (Endocrine Division)  
Boston City Hospital, Boston, MA  
Assisting Physician  
U.S. Army Institute of Environmental Medicine, Natick, MA  
Consultant  
Leary Laboratory, Boston, MA  
Consultant

EXHIBIT 1

- 1968-74 Mayo Clinic and Mayo Foundation, Rochester, MN  
Director, Clinical Study Unit  
Head, Metabolism Research Unit  
Consultant in Endocrinology and Internal Medicine  
Mayo Graduate School of Medicine, University of Minnesota  
Assistant Professor to Professor of Medicine  
Mayo Medical School  
Associate Professor to Professor of Medicine
- 1974-79 University of Texas Health Science Center, San Antonio, TX  
Professor of Medicine  
Deputy Chairman, Department of Medicine ( -1977)  
Audie L. Murphy Veterans Administration Hospital  
Chief, Medical Service ( -1977)  
Associate Chief of Staff for Research (1976-78)  
Bexar County Hospital  
Attending Physician  
Brooke General Hospital, Fort Sam Houston, TX  
Consultant
- 1979- University of California, San Francisco, CA  
Professor of Medicine  
Associate Dean, School of Medicine  
Veterans Administration Hospital  
Chief of Staff

#### Honors

NIH Research Career Development Award, 1967  
U.S. Army Decoration for Meritorious Service, 1963  
Phi Beta Kappa  
Alpha Omega Alpha Honor Medical Society

#### Recent Extramural Appointments

- NIH General Clinical Research Centers Committee  
Member, 1973-77  
Chairman, 1976-77
- NIH Advisory Committee on Application of Computer Technology to Clinical Investigation  
Member, 1972-present
- NIH General Medicine B Study Section  
Ad Hoc Member, 1977, 1978  
Member, 1978-82
- NIH Ad Hoc Advisory Committee on Clinical Trials  
Member, 1978-
- Metabolic Bone Disease and Related Research (bimonthly journal)  
Editor, 1977-



### Current Research Support

NIH Research Grant AM 18349, "Metabolism of Vitamin D in Man"  
Principal Investigator

VA Merit Review Project, "Vitamin D Metabolism in Patients with Renal Failure"  
Principal Investigator

### Certification

1954 Maryland Board of Medical Examiners  
1955 National Board of Medical Examiners  
1962 American Board of Internal Medicine  
1964 Massachusetts Board of Registration in Medicine  
1968 Minnesota State Board of Medical Examiners  
1974 Texas State Board of Medical Examiners  
1980 California Board of Medical Quality Assurance

### Professional Societies

American Society for Clinical Investigation  
Central Society for Clinical Research  
Southern Society for Clinical Investigation  
American Federation for Clinical Research  
Endocrine Society  
American Society for Bone and Mineral Research  
American Physiological Society  
Orthopedic Research Society  
American College of Physicians  
Maryland Society for Medical Research  
American Association for the Advancement of Science  
New York Academy of Sciences  
Sigma Xi  
Massachusetts Medical Society

### Family

Married to Mildred Helene Maseritz, August 23, 1953  
Children: Donna Jayne 1956  
Lynn Paula 1958  
Mark Alan 1962