

### **Reported Changes in the Sexual Behavior of Men at Risk for AIDS, San Francisco, 1982–84—the AIDS Behavioral Research Project**

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#### **Synopsis** .....

*We surveyed 454 men in November 1983 and in May 1984 regarding their sexual practices during*

*the month before the survey. In the 1983 survey, we also asked for reports about sexual behavior during the same month 1 year prior to the survey. The sample consisted of men recruited as they left bathhouses and bars, men who had not used bars or baths for meeting sexual partners for 2 months prior to the November 1983 survey, and men in committed primary relationships with another man.*

*We found substantial changes in reported sexual behavior with persons other than a primary partner. The average number of male partners declined from 6.3 in November 1982 to 3.9 in May 1984. Receptive anal intercourse without condom declined from 1.9 to 0.7, oral-anal contact declined from 1.1 to 0.3, and swallowing semen declined from 2.8 to 0.7 in terms of the number of times that the respondent engaged in the act in the last month. These same changes did not occur in relation to sex with a primary partner.*

*Only one variable, namely, increased length of time since the first homosexual experience, distinguished persons maintaining few sexual partners from those increasing the number of sexual partners from November 1983 to May 1984. Four variables distinguished those retaining high numbers of sexual partners from those lowering the number of sexual partners, namely, ability to remember a visual image of AIDS deterioration, age, relationship status, and length of time since first homosexual experience.*

**T**HE INCIDENCE OF AIDS AMONG SINGLE MEN aged 15 or older during 1983–84 was higher in San Francisco than in any other city in the United States (1). The earliest reported case of AIDS in San Francisco was in a gay man who presented symptoms in November 1980 that were later diagnosed as AIDS. By January 1985, a total of 868 men had been diagnosed with the disease, and approximately 46 percent had died. Of the reported cases in San Francisco, 99 percent were among gay or bisexual men. The total cases in the city may double by the end of 1985 (2).

Although many questions about the transmission of AIDS remain unanswered, there is convincing evidence that the disease and the suspected AIDS retrovirus (LAV/HTLV-III/ARV) is communicated by intimate sexual contact between infected and susceptible men.

The earliest case-control studies of gay men showed that AIDS patients had sexual contact with significantly more male partners than did healthy controls (3,4). Specific sexual practices such as exposure to feces by hand-anal intercourse ("fisting") or oral-anal intercourse ("rimming") increase the

risk for AIDS (3). A study in Los Angeles suggested a higher incidence of immunological abnormalities in men practicing receptive anal intercourse (5). More recent research indicates that the AIDS-related virus can be cultured from the semen and saliva of AIDS patients and persons whose exposure is indicated by serologic tests for the presence of viral antibodies (6-8). Investigators in San Francisco report that the prevalence of positive serologic tests for AIDS antibody is highest among men with large numbers of male sexual partners (9).

Increasing awareness that infection is transmitted through sexual contact has led to a focus on community education as a primary intervention to halt the spread of the disease (10). Since 1982, the San Francisco AIDS Foundation and other agencies have distributed information about AIDS and advice about how to limit the chance of infection, for example, the use of condoms during anal intercourse, reduction of contact with anonymous partners, and avoidance of sexual activities which result in an exchange of body fluids. In addition, representatives of the San Francisco Department of Public Health have sought to prohibit high-risk sexual activity in establishments under public licensure where gay men are thought to engage in sexual contact with multiple partners. Funds from the City of San Francisco have also been allocated in increasing amounts since 1983 to educate gay men about risk through media campaigns, information distributed by gay organizations, and health education programs targeted at specific subgroups of men known to be at highest risk.

Several factors play a role in what appears to be a major transformation in the sexual behavior and patterns of intimacy of the city's gay population: the size of the epidemic in San Francisco, its evident connection with sexual behavior, and the efforts to control contagion by encouraging "safe sex" and discouraging high-risk sexual activity. This paper, which is a part of a continuing longitudinal study of the impact of AIDS in San Francisco (11), was developed to document some of the changes that have occurred between 1982 and 1984 and to develop partial profiles of persons who maintain or move to low-risk activity compared with those who maintain or move to higher risk activity. This research is necessary because accurate data about the kinds and amounts of change are needed.

First, because of the peculiar characteristics of the disease itself, it cannot be assumed that gay men will change their behavior despite the fact that AIDS is lethal. Due to the apparently long period (3-5 years) from exposure to diagnosis (12), many

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men are convinced that they have already been exposed to AIDS from sexual contacts in the past. If they conclude either that disease is inevitable or that they are immune, they may not be motivated to change their sexual behavior.

Second, data currently available on changes in sexual behavior in San Francisco may not be completely valid indicators of the kinds of changes that have occurred. One of the indices most frequently used to describe declines in sexual activity is the 75 percent decline in the rectal gonorrhea cases reported to the city's health clinic since 1982. Similar reports came out of the United Kingdom (13). Because the number of such cases does not bear a simple relationship to the sexual activities that often cause infection, this index is not a perfect measure of trends in sexual activity. The other major sources of information about trends are one-time surveys in which respondents are asked to report whether they have changed their sexual activities in response to the epidemic (14). These data are more subject to recall errors and conscious distortion than periodic reports of current behavior.

Third, it is not yet clear how much change in sexual behavior must occur to stop the increase in the number of new AIDS cases. As the prevalence of infection increases, so does the risk that a new sexual contact will result in new infection. At an estimated 37 percent prevalence of antibody to the AIDS-related virus in San Francisco gay men (9), substantial reductions in high-risk behavior may still fall short of the threshold for slowing down the epidemic.

## Methods

**Recruitment and composition of the cohort.** In early 1983, we began studying how the threat of AIDS

was influencing gay men's psychological adjustment and their patterns of intimacy and sexual behavior. A survey questionnaire was pretested in April 1983, using three groups of sexually active gay men in San Francisco: patrons of gay bars, patrons of gay baths, and men who identified themselves as part of a gay couple. Based on this pretest, we designed and conducted a series of semiannual surveys of gay men's sexual behavior and of factors that may have affected their response to the epidemic (11).

The findings we report are based on followup studies of a cohort of persons who were initially recruited in November 1983. A total of 1,550 questionnaires were distributed to four groups of men.

- 400 men were handed questionnaires as they left three popular bathhouses between 8 p.m. and 2 a.m.
- 400 men were handed questionnaires as they left gay bars in several different neighborhoods between 6 p.m. and 2 a.m.
- 250 men were recruited through advertising in local gay papers and fliers sent to gay professionals and organizations asking for volunteers who had not used bars or baths for 2 months prior to the recruitment.
- 250 couples (500 men) who had participated in other investigations received a letter and questionnaire through the mail.

A total of 655 questionnaires (42 percent of those distributed) were returned in a form suitable for data entry and analysis. The men were selected in this way to represent men engaging in high- and low-risk sexual activity.

This mode of recruitment into the study resulted in a participant group with higher overall levels of sexual activity than were found in random samples of the gay male population of San Francisco. We confirmed this fact by comparing average levels of sexual contact in our groups with the results of a random telephone survey of gay men conducted shortly after our first wave of data collection (14) and with the preliminary results of a probability sample of single men (the San Francisco Men's Health Study) from 19 census tracts in San Francisco with the highest cumulative incidence of AIDS (9). For example, we found that men not in relationships or in nonmonogamous relationships in our sample had sex with an average of 3.9 men during May 1984, while respondents in the telephone survey reported sex with 2.5 men for men in nonmonogamous relationships and with 2.9 men for those not in relationships. A total of 58 percent of our men were in relationships (25 percent in monogamous relationships), compared with 52 per-

cent (42 percent monogamous) for the telephone survey. The results from the probability sample are virtually identical to the telephone survey results. Thus our cohort provides useful evidence about the kinds of changes that have occurred in the segments of the gay population whose risk of infection is high, based on epidemiologic findings (5).

In May 1984, 6-month followup questionnaires were sent by mail to the 557 men who volunteered to participate in subsequent waves of data collection. A total of 454 questionnaires were returned, about 70 percent of the total number who completed the November 1983 questionnaire. The responses of these 454 "panel respondents" constitute the data we have used for this paper.

About half of the 201 persons who were lost to followup dropped out by failing to volunteer their names and addresses when they filled out the November 1983 questionnaire. These men were likely to have been recruited as they left bars and baths (41 percent of the bar group and 39 percent of the bath group dropped out, compared with 4 percent for the no-bar no-bath group and 16 percent for the couple group). Dropouts tended to have more sexual contacts per month than members of the panel sample (30 percent of the dropouts reported six or more sexual partners the previous month, compared with 19 percent of panel respondents). Their withdrawal may have been due to loss of anonymity or the increase in public controversy at that time over attempts to regulate sexual activity in city bathhouses. Persons who dropped out after initially volunteering were statistically indistinguishable from panel respondents with respect to mode of recruitment, number of reported sexual partners, being in a committed gay relationship with another man, and level of educational attainment.

**Measurement issues.** All methods of analyzing individual change can be biased by the presence of unreliability in the dependent variable (15). It is our impression, based on checks on the internal consistency of the responses, that our data do not contain large components of random error. Given the threat of the epidemic and the barrage of educational information about risks of sexual contact, gay men who wish to report accurately about their sexual behavior in the last 30 days should have no trouble doing so. However, we will not be able to evaluate the importance of unreliability as a factor in our findings until a third wave of data is collected and estimates of error variance can be made, using techniques developed for analysis of panel data by a member of our research team (16,17).

Table 1. Changes in sexual activity, November 1983 to May 1984

Sample characteristics	November 1982 (retrospective)		November 1983 (current)		May 1984 (current)		No change November 1983 to May 1984 (test of null hypothesis)
	Percent	Number	Percent	Number	Percent	Number	

  

Panel of 454 respondents

Primarily monogamous relationship .....			26	116	25	111	$\chi^2$ test of marginal homogeneity nonsignificant
Primarily nonmonogamous .....			31	137	33	151	
No relationship .....			43	193	42	190	
Total number of different sex partners last month:							
0 .....	6	27	8	36	10	44	
1 .....	34	151	36	159	38	167	
2-5 .....	60	263	36	158	39	171	
6 or more .....			19	83	13	59	
Average number of sex partners last month .....				3.7	...	3.2	$r = .58, t = 2.3, df = 423, P < .021$

  

288 respondents, nonmonogamous relationship in November 1983 and May 1984

Total number of different sex partners last month:							
0 .....	8	23	10	29	13	36	
1 .....	18	50	13	37	18	51	
2-5 .....	37	104	25	144	50	141	
6 or more .....	37	104	25	83	19	54	
Average number of sex partners last month .....	6.3		...	4.9	...	3.9	$r = .74, t = 4.0, df = 277, P < .001$
Average number of sex partners not previously known last month .....	4.7		...	3.5	...	2.5	$r = .74, t = -4.3, df = 274, P < .001$
Average number of times engaged in following acts with persons other than primary partner last month:							
Anal intercourse without condom .....	1.9		...	1.3	...	0.7	$r = .31, t = -2.3, df = 251, P < .023$
Oran-anal contact .....	1.1		...	0.6	...	0.3	$r = .39, t = -2.5, df = 250, P < .013$
Swallowing semen .....	2.8		...	1.1	...	0.7	$r = .59, t = -3.5, df = 253, P < .002$
Mutual maturation .....	2.5		...	2.5	...	2.1	$r = .59, t$ nonsignificant
Average number of times visited sex club or bathhouse for sex last month .....	2.4			1.5		0.6	$r = .46, t = 6, df = 272, P < .001$

  

225 respondents in primary relationship, November 1983 and May 1984

Number of times had sex with primary partner last month:							
0 .....	9	19	18	18	12	27	
1 .....	3	6	3	7	4	9	
2-5 .....	23	49	30	67	27	61	
6-10 .....	33	70	28	63	31	70	
11 or more .....	31	68	31	69	25	56	

Table 1. Changes in sexual activity, November 1983 to May 1984 (continued)

Sample characteristics	November 1982 (retrospective)		November 1983 (current)		May 1984 (current)		No change November 1983 to May 1984 (test of null hypothesis)
	Percent	Number	Percent	Number	Percent	Number	
225 respondents in primary relationship, November 1983 and May 1984							
Average number of times had sex with primary partner last month .....		10.8	...	9.7	...	8.5	{ $r = .68, t = -2.6, df = 221, P < .011$
Average number of times engaged in following acts with primary partner last month:							
Anal intercourse without condom .....		3.3	...	2.5	...	2.3	{ $r = .37, t$ nonsig- nificant
Oral-anal contact .....		1.8	...	1.1	...	1.3	
Swallowing semen .....		4.4	...	3.2	...	2.5	{ $r = .71, t = -1.91, df = 207, P < .06$
Mutual masturbation .....		4.4	...	5.0	...	4.7	

## Results

**Aggregate changes in sexual activity.** The self-administered questionnaires used in November 1983 and May 1984 included several batteries of items pertaining to sexual behavior with male partners during 1 month before completing the questionnaire form. Respondents were asked to report the overall number of partners and place of sexual activity, the frequency of specific acts within the respondent's primary relationship (if he was in a couple), and the frequency of these acts with previously unknown partners or partners secondary to their primary relationship.

Table 1 presents summary data for some of these items, organized by wave of data collection and by subgroups of the sample. The table includes a column of figures for November 1982 that were obtained by asking respondents to recall their behavior 1 year earlier. Only reports of current activity in November 1983 and May 1984 are used for significance tests, the null hypotheses being that no change had occurred between these time periods. In all but one of the comparisons, the statistic is a two-tailed *t*-ratio adjusted for serial correlations between the reports (18).

Table 1 shows trends in the number of male partners in the last month for the entire panel sample. Taking into account both retrospective and current data, there was a clear trend toward fewer sexual partners per month. There was no tendency for the panel sample to change with respect to the frequency of self-identification as part of a gay couple.

For men who were in a monogamous gay relationship at the first or second wave of data collection, the average number of partners declined about 38 percent in the 18 months from November 1982 to May 1984. The estimated trend in encounters with new sexual partners per month—persons not known to the respondent before his first sexual contact with them—declined 47 percent during the same period, a steeper decline than the trend for frequency of contact with all sexual partners. There were also significant reductions in the monthly average frequency of high-risk sexual behaviors (receptive anal intercourse without a condom, active oral-anal contact, and swallowing semen). However, there were no increases in either of the two "safe sex" activities measured (mutual masturbation and condom use during anal intercourse). There was a decrease in attendance at bathhouses.

**Correlates of change.** To investigate the correlates of individual change and stability in one major risk factor for AIDS, the number of sexual partners per month, we divided the sample into two parts: those men who had few (0–2) sexual partners per month in November and those who had many (3 or more). The first group (few sexual partners) was subdivided into men who continued to have few sexual partners in May ("maintainers") and those who increased the number of partners. The second group (many sexual partners) was divided into persons who moved toward fewer partners in May 1984 ("reducers") and those who continued to have

Table 2. Predictors of risk reduction in maintainers and reducers

Characteristics	0-2 partners, November 1983 (N = 203)			3 or more partners, November 1983 (N = 221)		
	Maintained few partners May 1984 (percent)	Base Number	Probability	Reduced to few partners May 1984 (percent)	Base Number	Probability
Total sample	70	203		41	221	
Visual image of AIDS deterioration?						
No	73	60	NS	34	89	$P < .087$
Yes	68	143		46	132	
Agreement with guidelines for risk reduction:						
Low	72	75	NS	36	107	NS
High	66	118		45	105	
Friend has AIDS or has died from it?						
No	69	171	NS	40	177	NS
Yes	72	32		46	44	
Income in November 1983:						
0-\$20,000 a year	67	78	NS	43	75	NS
\$21-\$30,000	71	63		46	68	
\$31,000 or more	74	57		36	77	
College graduate:						
No	70	54	NS	39	69	NS
Yes	70	145		40	144	
Age in November 1983:						
19-30	71	61	NS	51	61	$P < .034$
31-40	69	86		43	113	
41-61	69	55		26	46	
How long since first homosexual experience?						
17 years or less	60	75	$P < .064$	42	64	$P < .056$
18-26 years	78	63		49	76	
27 years or more	73	62		30	74	
Relationship status:						
In relationship November 1983	68	136	NS	47	122	$P < .085$
Not in relationship	72	67		34	99	

NOTE: NS = nonsignificant ( $P \geq .10$ ).

many. The percentages of maintainers and reducers are an indicator of the extent to which there has been a shift toward, or maintenance of, lower risk behavior.

Table 2 presents analyses of predictors of low-risk behavior in May 1984. The column at extreme left presents the percentage of those with initially few sexual partners who maintained at a low level in May 1984. The chi-square test was used to determine which variables discriminated the "maintainers" from those who increased in number of sexual partners in May 1984. At right is the column presenting the percentage of those with initially many partners who reduced to few partners in May 1984. The chi-square test was used to determine which variables discriminated the reducers from those who maintained a high number of sexual partners in May 1984.

Two indicators of direct experience of the epidemic—having a friend or an acquaintance with AIDS—had no significant relationship to maintenance of few partners per month. However, reduc-

tion from many to few partners was more likely to occur among those men who could remember the visual image of someone in the advanced stages of AIDS deterioration.

No relationship was found between change or stability in the number of partners and level of agreement with health guidelines advocated by the local AIDS Foundation. Men who agreed strongly were no more likely to be maintainers or reducers than men who did not endorse the guidelines. Persons with college degrees or moderately high annual incomes were not different from less educated or lower income men with respect to changes in the number of sex partners.

The strongest correlate of reductions in the number of partners in our cohort was age. In general, younger men were more likely than older men, by a factor of two, to move from many to few partners. Similarly, men whose first homosexual experience was long ago were less likely to reduce the number of sexual partners. In addition, men who considered themselves part of a primary gay relationship in

November 1983 were more likely to reduce the number of sexual partners than men who began their participation in the study as singles.

## Discussion

A decade ago, the gay male subcommunity of San Francisco was a relatively new, youthful, and mobile society of men. Many had recently migrated to the area to be with other gay men and to explore their homosexuality. The experience of relief from repressive sociological and intrapsychic forces that had inhibited homosexuality speeded the new emergence of many men of varied ages who now called themselves "gay." By 1980, a climate of shared opinion and belief had developed, endorsing frank and open expression of affection and sexual feeling. Behavioral responses to the restrictions imposed by the AIDS epidemic need to be understood in this context.

The AIDS epidemic has precipitated fundamental changes in the sex lives of gay men in San Francisco. These are reflected in reports of our cohort which indicate that the volume of sexual contacts, as well as the likelihood of behaviors which are thought to transmit disease and the probable AIDS virus, have been on a downward trend, at least since November 1983 and very probably for a longer period (11). Our findings suggest that, to a great extent, the sexual choices of our cohort are organized by the desire to avert risk. The steepest trends are among high-risk activities: sex with strangers, sex which involves the exchanges of body fluids that may contain infectious agents, and sex in places that promote multiple partner contacts.

Overall reductions in the frequency of sexual activity, including the number of times gay couples have sex, suggest that gay men are inhibiting their sexual activity in all contacts rather than simply shifting from specific unsafe acts to "safe sex" acts. It may be more difficult for gay men to generate new activities, such as use of condoms, than it is to stop dangerous activity, such as those behaviors that exchange bodily fluids.

Even in epidemic circumstances, some persons find it easier to make changes than others. The men least likely to reduce their numbers of sexual contacts were older men whose first homosexual experience was long ago, single men, and men who did not carry a visual image of AIDS deterioration. This profile is, of course, an incomplete and tentative description of the sources of resistance to changes in sexual behavior at this stage of the epidemic. But the characterization does have some validity: older,

single men who have sex with many partners may have a longer history in that pattern than younger men and those who have formed stable relations with a primary partner.

Additional investigations in San Francisco and elsewhere are under way to monitor further changes in sexual behavior and to provide the data for a more general understanding of how different sectors of the gay population are adjusting to the epidemic (19).

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## Forum on Malpractice Issues in Childbirth

**P**ROLIFERATING MALPRACTICE SUITS, spiraling jury awards, soaring premiums for liability insurance, and the refusal of a growing number of insurers to renew malpractice policies have led to a crisis in maternal health care, most experts at a July 1985 forum on malpractice issues in childbirth agreed. Speaker after speaker testified that these trends are driving many maternal health care providers out of the field, restricting access of pregnant women to appropriate medical care, changing obstetrical practice, and increasing health care costs.

The 2-day forum, held at the National Institutes of Health in Bethesda, MD, was first proposed by the International Childbirth Education Association (ICEA) and was cosponsored by the National Institute of Child Health and Human Development and the Health Resources and Services Administration's Division of Maternal and Child Health. It brought together some 80 representatives of all parties involved in the malpractice situation as it affects maternal health care—obstetricians and gynecologists, family practitioners, nurse midwives, hospitals, birth centers, the Federal Government, State legislators, third-party insurers, malpractice underwriters, attorneys, and childbirth and health consumer organizations—to examine the many facets of the problem and develop constructive recommendations for action.

### Crisis Effects Widely Felt

In opening statements, officials of the sponsoring agencies outlined the concerns that had led them to convene the forum.

Susan K. Baker, ICEA President, said the association's worries about the malpractice situation are threefold: actual malpractice, diminished access of women to appropriate prenatal and obstetrical care, and a reduction in choices for childbearing families.

"Action must be taken to reduce injuries caused through negligence by health providers," she said.

"Litigation and compensation must continue to be options available to those injured through negligence. However, the role of litigation in health care should not be restrictive to the point of curtailing quality of care and the ability of providers and consumers to work together in a trusting environment. It should not be a major determining factor in health care decisions."

Citing the growing number of malpractice suits, rising liability premiums, and problems some care providers are having in obtaining any malpractice insurance at all, Baker said that in some communities "women may be left with few birth alternatives for professional maternity care, and thus their pregnancy outcomes could be jeopardized."

ICEA is also concerned that childbirth choices are being reduced, she continued. "As malpractice claims become more frequent and settlements become higher, health care providers and hospitals become less flexible, interventions such as prenatal diagnostic testing and electronic fetal monitoring become more routine, and parents have fewer options available. . . . ICEA is concerned that this trend has shifted the emphasis of birth from that of a most significant human event that is usually low-risk to a high-risk, high-tech experience."

Vince Hutchins, MD, Director of the Division of Maternal and Child Health, Health Resources and Services Administration, quoted nurse educator Reva Rubin's statement that "without investment in the pregnant woman, she cannot invest in her child."

"That investment begins with prepregnancy care and counseling and continues with early and comprehensive prenatal care," Hutchins said. "Our concern is that health providers—certified nurse midwives, obstetricians, family practitioners, public health nurses—will be available, especially to low-income women, to provide that care in a complete and timely fashion."

In addition to the concerns outlined by Baker and Hutchins, Duane Alexander, MD, Acting Director of the National Institute of Child Health and Human Development (NICHD), emphasized the "constraint placed on research that is imposed by a system that becomes driven primarily by lawsuits."