

# Characteristics of Clients Attending Confidential versus Anonymous Testing Clinics for Human Immunodeficiency Virus

Itzchak Levi MD<sup>1</sup>, Baruch Modan MD<sup>2</sup>, Tzvia Blumstein MA<sup>2</sup>, Osnat Luxenburg MD<sup>2</sup>, Tamar Yehuda-Cohen PhD<sup>2</sup>, Barak Shasha MD<sup>3</sup>, Amir Lotan MD<sup>3</sup>, Arie Bundstein MD<sup>3</sup>, Asher Barzilai MD<sup>1</sup> and Ethan Rubinstein MD<sup>3</sup>

<sup>1</sup>Infectious Disease Unit and <sup>2</sup>Department of Clinical Epidemiology, Sheba Medical Center, Tel-Hashomer and Sackler Faculty of Medicine, Tel Aviv University, and <sup>3</sup>Israel AIDS Task Force, Tel Aviv, Israel

**Key words:** human immunodeficiency virus, anonymous testing, risk factors, sexual behavior, sex preference

## Abstract

**Objectives:** To compare risk behavior between subjects attending anonymous and confidential clinics for human immunodeficiency virus testing, and to assess whether anonymous testing results in a higher accrual of persons at risk for HIV.

**Methods:** An anonymous questionnaire that addressed sociodemographic and risk behavior aspects was administered to 140 subjects attending an anonymous clinic and 124 attending a confidential clinic in the Tel Aviv area. A logistic regression analysis was used to compare the effects of various behavioral factors on the probability of attending each clinic.

**Results:** Chronological age, age at first sexual intercourse, and the percent of married subjects were similar in both clinics. However, there was a significant difference in the sex ratio and in educational attainment (85.0% versus 55.6% were males,  $P < 0.001$ ; and 58% vs. 34% had over 12 years of education,  $P < 0.001$ , in the anonymous and confidential clinics respectively). There was a striking difference between the two clinics with regard to sexual experience characteristics: of the subjects reaching the anonymous clinic 21.4% were homosexual and 10.0% bisexual versus a total of 2.6% in the confidential clinic. A logistic regression analysis, comparing the effects of various behavioral factors on the probability of attending each clinic, showed that gender (male), high education, homosexuality, number of partners and sexual encounter with sex workers were the strongest predictors for selecting anonymous HIV examination.

**Conclusions:** Individuals at high risk for HIV, such as homosexuals and bisexuals, prefer to attend an anonymous clinic.

*IMAJ 2001;3:184-187*

The propagation of AIDS, a primarily sexually transmitted disease, depends mostly on the sexual behavior of the individual. As such, HIV counseling and testing is a major component of the public health effort to contain the HIV/AIDS epidemic. It is claimed that high risk individuals who seek anonymous HIV testing would avoid being tested, for fear of discrimination and legal sanctions, if their sexual behavior or test results were recorded and became known [1–4].

As of January 2000, a total of 2,024 persons were reported as carriers of HIV in Israel. The incidence of new HIV-seropositive carriers is about 250 per year. HIV in Israel is foremost a sexually transmitted disease. To date, 51% of HIV seropositives were new immigrants who were infected outside Israel; 66% were men, of whom 27% were homosexuals and 10% were intravenous drug users [5].

Israel has eight HIV governmental testing centers that maintain the subjects' confidentiality but are not anonymous. Current policy in Israel does not encourage anonymous testing for AIDS, and subjects are asked to show an ID card that contains their name and address before blood is drawn. In 1991 the Israel AIDS Task Force, a non-governmental organization, established anonymous HIV testing clinics that provide pre- and post-test counseling. HIV tests are free of charge in the governmental clinics but cost \$15 in the anonymous clinics.

The aim of our study was to compare behavioral and other risk factors for contracting HIV between subjects seeking HIV anonymous testing and those attending the confidential governmental HIV testing centers.

## Methods

During a 3 month period the risk factors for HIV infection were systematically recorded in all individuals tested in the anonymous HIV testing center in Tel Aviv and in the government confidential HIV testing center at the Sheba Medical Center. The distance between the two centers is about 8 kilometers, and both are open to the public for 4 hours a week.

The subjects were asked to fill out, anonymously, a constructed questionnaire that included sociodemographic and risk behavior data (sexual behavior, number of partners in the

HIV = human immunodeficiency virus

last year, intravenous drug use), possible types of exposure, reason for being tested, previous testing history, and anonymous or confidential preference.

### Statistical analysis

A comparison of the sociodemographic characteristics and selected sexual behavior indices of subjects approaching the two centers was undertaken. Differences between centers were assessed by the Chi-square test for categorical variables and *t*-test for continuous variables. Stepwise logistic regression analysis using backward variable selection was used to assess the net effect of various behavioral factors on the probability of attending the anonymous as compared to the confidential testing center. Variables entered in the models were those found to be significant at the  $P < 0.10$  level in the univariate analysis. To avoid the potential bias due to deleting respondents with missing data on sexual behavior variables, models were computed in two ways: a) without indices of sexual behavior in order to assess the associations of sociodemographic and sexual preference (homosexual/bisexual) in the multivariate model, and b) by assigning individuals with missing data to a separate category in the multivariate model in order to retain all subjects in the analysis [6]. The risk associated with missing data in each variable is presented.

## Results

During the study period 140 subjects attended the anonymous center and 124 the confidential center. The compliance with completing the questionnaire in both centers was 88%. Of those who returned to obtain their test results, 94% and 80% respectively had been tested at the anonymous and confidential centers.

### Sociodemography

Sociodemographic characteristics are presented in Table 1. The mean age did not differ significantly between the two groups (29.9 vs. 28.0 years). The percentage of married persons was also similar in both centers. In contrast, there was a significant difference in the sex ratio and in the level of education. In the anonymous center 85.0% were males versus 55.6% at the confidential center ( $P < 0.001$ ), and almost 58% of subjects vs. 34% had more than 12 years of education respectively ( $P < 0.001$ ). Other demographic characteristics (origin, religion, urban/rural residence) did not differ between the centers.

### Sexual experience

The difference between subjects attending these two clinics was in their sexual experience and selected life habits [Table 2]. Among those attending the anonymous clinic, 31.4% were homosexual or bisexual (21.4% and 10.0%, respectively), compared to only 2.6% in the confidential clinic (1.3% in each sub-category) ( $P < 0.001$ ). Of heterosexual men who had regular encounters with sex workers, 46.2% attended the anonymous

**Table 1.** Sociodemographic characteristics of study subjects by type of center

	Total (n = 264)	Anonymous center (n = 140)	Confidential center (n = 124)	< P*
Mean age (yr)	29.60 ± 10.0	29.9 ± 8.9	28.0 ± 11.1	NS
(range)	(15–71)	(15–60)	(15–71)	
Married (%)	20.1	21.4	18.6	NS
Males (%)	71.2	85.0	55.6	.001
12+ yr education (%)	47.1	57.9	34.0	.001
Israeli born (%)	85.6	84.6	86.8	NS
Rural residency (%)	6.9	8.8	4.5	NS
Non-Jews (%)	2.0	2.1	1.7	NS
Religious (%)	4.8	5.2	4.4	NS

\* *P* values derive from the test of no difference between centers (as assessed by Chi-square for categorical variables or *F* tests for continuous variables)

**Table 2.** Sexual experience characteristics and selected life habits of study subjects by center

	Total (n = 264)	Anonymous center (n = 140)	Confidential center (n = 124)	P <
Mean age at first sexual encounter (yr)	18.3 ± 3.2	18.3 ± 3.0	18.3 ± 3.5	NS
(range)	(12–36)	(13–30)	(12–36)	
Homosexual or bisexuals (%)	18.4	31.4	2.6	.001
Men having sex with sex workers* (%)	36.0	46.2	21.7	.004
No. of sexual partners in the year prior to interview**	5.7 ± 8.8	7.9 ± 10.5	2.1	.001
(range)	(0–50)	(0–50)	(0–5)	
Always practicing safe sex*** (%)	38.2	42.4	31.8	NS
Use of sniffing drugs (%)	15.2	20.7	8.9	.01
Cigarette smokers (%)	36.7	38.8	35.1	NS
Frequent alcohol users (%)	11.3	11.8	10.5	NS
Previous HIV testing (%)	39.9	50.7	27.4	.001

\* 77 men did not respond to this question; the percentage is based on respondents only.

\*\* 121 subjects did not respond to this question; the mean is based on respondents only.

\*\*\* 99 subjects did not respond to this question; percentage based on respondents only.

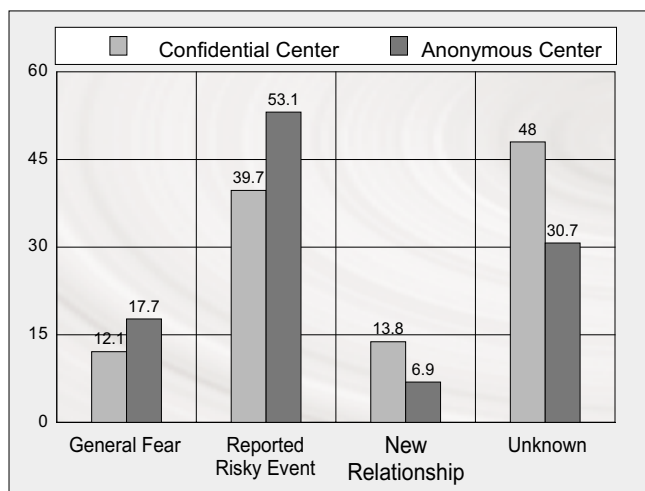
clinic compared to only 21.7% attending the confidential clinic ( $P < 0.01$ ). The average number of sexual partners per year per person was significantly higher in the anonymous clinic group, 7.9 (range 0–50) compared to 2.1 (range 0–5) in the confidential clinic group. A higher proportion of those attending the anonymous clinic used various sniffing drugs (20.7%) as compared to 8.9% in the confidential clinic. Also, more anonymous clinic subjects had had an HIV test performed previous to the current test (50.7% vs. 27.4%, respectively).

Odds ratios [Table 3] for attending the anonymous HIV testing center using sexual behavior and sociodemographic parameters were 7.95 (C.I.=2.3–30.8) for homosexuals/bisexuals, 7.4 (C.I.=2.4–23.6) for subjects with more than three partners per year, 3.5 (C.I.=1.3–9.5) for subjects reporting sex with sex workers, 1.9 (C.I.=0.9–4.0) for men, 2.4 (C.I.=1.2–4.8) for subjects with more than 12 years of education, and 2.0 (C.I.=1.0–4.0) for those who had had previous HIV testing.

**Table 3.** Risk ratio\* for attending anonymous HIV testing center

Variable	Odds ratio (95% CI)
Male vs. female	1.9 (0.9–4.0)
Previous HIV testing	2.0 (1.0–4.0)
Education (13+ yr)	2.4 (1.2–4.8)
Homosexuals/bisexuals	7.9 (2.35–30.8)
No. of partners > 3	7.4 (2.4–23.2)
Unknown no. of partners	1.1 (0.6–2.3)
Sex with sex workers	3.5 (1.3–9.5)
Unknown	1.2 (0.6–2.5)

\* Results of stepwise logistic regression.

**Figure 1.** Reasons for being tested for HIV

Employing the same multivariate analyses for heterosexuals only ( $n=217$ ), the last step model included male gender (OR=1.9, CI=0.9–4.1), 12+ years of education (OR=2.1, CI=1.1–4.2), previous testing (OR=2.2, CI=1.1–4.3), and having sex with sex workers (OR=4.8, CI=1.8–12.3).

### Reasons for being tested

There was a significant difference ( $P<0.03$ ) between the two groups in the reasons that led the subjects to take an HIV test [Figure 1]. The most common reasons among subjects attending the anonymous clinic were anxiety due to a specific risky behavior (53.1%) and fear of being infected with HIV (17.7%); only 6.9% of the subjects tested in the anonymous clinic underwent an HIV test before starting a new relationship. Among subjects attending the confidential clinic, the most common reasons for having the HIV test were a reported risky event (39.7%), starting a new relationship (13.8%), and fear of being infected with HIV (12.1%).

### Discussion

According to our study, individuals with high risk behavior for contracting HIV – particularly homosexuals, bisexuals and heterosexuals who have had multiple partners, or regular sexual

encounters with sex workers – preferred to undergo HIV testing at the anonymous center. More than 50% of those attending this clinic declared that they would not have taken the HIV test were it not anonymous. Among homosexual men attending the anonymous clinic, 62% claimed that they would avoid the HIV test if an anonymous option were not available. Also, the anonymous center had a higher rate of subjects returning to obtain their test results and for post-test counseling than did the confidential center. In our experience, significantly more subjects attending the anonymous HIV testing center had been previously tested than subjects attending the confidential clinic.

The effect of an anonymous testing option on demand for HIV counseling and testing has been studied in different areas around the world. High risk behavior was strongly associated with choosing the option of anonymity. In Oregon [7] the demand rose by 50%, the largest increase being among homosexual men of whom 29% stated that they would not be tested were an anonymous option not offered. Thus, 49% of homosexual men would not have come for testing if only confidential testing was available. Similar results were obtained in Arizona [8] and in California, where Kegeles et al. [4] found that 40% of people attending an anonymous HIV testing center would have avoided it had tests not been conducted anonymously.

One of the problems concerning anonymous HIV testing centers is that subjects might not return to obtain their test results, yet several surveys found that on average 60–65% of subjects did return for their test results and for post-test counseling [7–10]. In our study this trend was illustrated by the fact that more subjects from the anonymous HIV testing center actually returned for test results than from the confidential clinic (94% vs. 80%).

Educational efforts such as post-test counseling represent one of the most important ways to prevent sexually transmitted diseases. From this viewpoint, anonymous testing centers are extremely important since they educate people who are at the highest risk of contracting HIV. On the other hand, one of the chief benefits, from the standpoint of classical public health practice in the field of sexually transmitted diseases, has been the possibility of prevention via identification of contacts and subsequent immediate intervention. Therefore, the potential failure in achieving this aim in anonymous testing constitutes a major obstacle.

It has been almost 20 years since the emergence of the HIV/AIDS epidemic, yet fear from exposure and subsequent delegitimization and prejudice still prevails. About 150,000 voluntary HIV antibody tests are being conducted annually in Israel, the vast majority in confidential HIV testing centers. Due to the lack of an HIV prophylactic vaccine, counseling following HIV testing becomes an invaluable means of reaching high risk persons who may be persuaded to be responsive to a behavioral change. Nonetheless, the combination therapy that is available today carries the potential for containing the infection soon after treatment for infection begins [10]. Thus, early identification of asymptotically infected persons is of

central importance. On the other hand, since HIV counseling would be effective only if subjects at risk are willing to be tested for HIV [11] and identified, a combined method that would satisfy all these requirements must be envisaged.

---

## References

1. Coates TJ, Morin SF, McKusick L. Behavioral consequences of AIDS antibody testing among homosexual men. *JAMA* 1987;258:1889
2. McCusker J, Stoddard AM, Mayer KH, Zapka J, Morrison C, Saltzman SP. Effect of HIV antibody test knowledge on subsequent sexual behaviors in a cohort of men. *Am J Public Health* 1988;78:462-7.
3. Coates TJ, Stall RD, Kegeles SM, Lo B, Morin SF, McKusick L. AIDS antibody testing: will it stop the AIDS epidemic? Will it help people infected with HIV? *Am Psychol* 1988;43:859-64.
4. Kegeles SM, Catania JA, Coates TJ, Pollack LM, Lo B. Many people who seek anonymous HIV antibody testing would avoid it under other circumstances. *AIDS* 1990;4:585-8.
5. Health Status in Israel. Israel Center for Disease Control, Tel-Hashomer, 2000.
6. Huberman M, Langholz B. Application of the missing-indicator method in matched case-control studies with incomplete data. *Am J Epidemiol* 1999;150:1340-5.
7. Fehrs LJ, Fleming D, Foster LR, McAlister PJ, Fox V, Modesitt S, Conrad R. Trial of anonymous versus confidential human immunodeficiency virus testing. *Lancet* 1988;ii:379-82.
8. Hirano D, Gellert GA, Fleming K, Boyd D, Engender SJ, Hawks H. Anonymous HIV testing: the impact of availability on demand in Arizona. *Am J Public Health* 1994;84:2008-10.
9. Valdiserri RO, Moore N, Gerber AR, Campbell CH Jr, Dillon BA, West GR. A study of patients returning for counseling after HIV testing: implications for improving rates of return. *Public Health Rep* 1993;108:12-18.
10. Farnham PG, Gorsky RD, Holtgrave DR, Jones WK, Guinan ME. Counseling and testing for HIV prevention: costs, effects, and cost-effectiveness of more rapid screening tests. *Public Health Rep* 1996;111:44-53.
11. Kassler WJ, Dillon BA, Haley C, Jones WK, Goldman A. On site, rapid HIV testing with same day results and counseling. *AIDS* 1997;11:1045-51.

---

**Correspondence:** Dr. I. Levi, Infectious Disease Unit, Sheba Medical Center, Tel-Hashomer 52621, Israel. Phone: (972-3) 530-3500, Fax: (972-3) 534-7081, email: itmedico@netvision.net.il