

# Failure to Learn Human Immunodeficiency Virus Test Results in Los Angeles Public Sexually Transmitted Disease Clinics

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**Background:** Early human immunodeficiency virus (HIV) detection is essential for initiating treatment and partner-notification activities. Sexually transmitted disease (STD) clinic attendees are at high risk for infection and should be made aware of their HIV status.

**Goal:** To determine the characteristics associated with not receiving an HIV test result in an STD clinic setting.

**Study Design:** Confidential HIV testing was offered to 6,705 persons attending four public STD clinics in Los Angeles who submitted blood for syphilis serology and were tested for HIV antibody in an unlinked HIV serosurvey. Human immunodeficiency virus test results and return status were anonymously linked to other risk information.

**Results:** Only one-third of attendees were tested and given their results. Those testing HIV positive in the anonymous survey and those requesting HIV testing were most likely to receive a test result (i.e., 41% and 49%, respectively). Those solely requesting an STD examination, repeat testers, and African-Americans were least likely to receive a result (i.e., 32%, 30%, and 26%, respectively).

**Conclusions:** Most STD clinic patients fail to receive an HIV test result. Other strategies, such as rapid HIV testing, are needed to increase participation and receipt of HIV test results in this high-risk population.

HUMAN IMMUNODEFICIENCY virus (HIV) testing and counseling programs have the greatest impact on personal and public health when those being tested learn their results, decrease risk behaviors, and, if testing positive, seek early treatment for their infection. Patients infected with sexually transmitted diseases (STDs) are of special concern because of their increased risk of HIV infection.<sup>1</sup> In Los Angeles

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County, confidential HIV testing is offered routinely to all patients who visit the public STD clinics. The four public clinics included in these analyses participate in the Centers for Disease Control and Prevention HIV seroprevalence surveys.<sup>2</sup> Patients seen in these four clinics represent more than 50% of all publicly funded STD clinic visits to Los Angeles County STD clinics. Two measures of success of STD clinic testing programs are the rate at which patients accept confidential testing and the ability of clinic officials to notify patients of laboratory test results.

Although issues related to confidential testing for HIV infection have been explored in the literature, rarely have investigators linked the offering, acceptance, and receiving of HIV test results together to evaluate whether these programs are effective. Unlike testing services that are offered through general health clinics, testing and counseling at STD clinics are targeted at persons who because of sexual risk behaviors are at increased risk for HIV infection. Data from other types of test centers do not fully characterize individuals who are at risk for HIV infection and refuse an HIV test outwardly or refuse a test by virtue of their absence.<sup>3-7</sup> Recent studies contrasted the demographic characteristics of STD clinic patients who accept or refuse confidential HIV testing, and others examined factors associated with prior, current, and repeated (HIV) testing in these public clinics.<sup>6,8,9</sup> The correlation between high-risk sexual and drug-using behaviors and self-reported testing for HIV infection in a population-based sample was evaluated.<sup>10</sup> Additionally, factors influencing a patient's return for HIV test results have been examined in detail.<sup>3-7</sup> To date, however, investigators have not evaluated the entire confidential HIV-testing

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process in STD clinics from offering testing to acceptance of testing and finally to returning for test results.

### Methods

Between July 1994 and July 1995, sera from 4,090 men (61%) and 2,615 women (39%) seen at four Los Angeles County Department of Health Services STD clinics were tested for HIV infection in an unlinked survey. Los Angeles County monitors HIV seroprevalence in STD clinics as part of a larger network of Centers for Disease Control and Prevention-sponsored unlinked HIV seroprevalence surveys.<sup>2</sup> Briefly, all patients submitted blood samples for syphilis serology. During the intake interview, each patient was also offered a confidential HIV test. Those who accepted HIV testing were given a posttest appointment 7 to 10 days later to receive their results. All patients completed a routine risk-assessment questionnaire administered by an interviewer from which personal identifying information was removed. The discarded sera from the blood specimens drawn for syphilis serology were recovered and tested anonymously for the presence of HIV antibodies (multiple ELISA with Western blot confirmation of reactive specimens). The test results were linked anonymously to the risk-assessment questionnaire by a unique study identification number. The risk-assessment questionnaire collected basic demographic and risk behavior information, including whether or not the patient accepted a confidential HIV test.

We excluded all persons who reported being HIV infected, refused confidential testing, and subsequently tested positive for the virus ( $n = 15$ ). We considered all other patients visiting the four STD clinics to be at risk for infection, regardless of when they reported last being tested for HIV infection.

Tabular statistics were used to describe the data, and maximum likelihood logistic regression was used to adjust for the effects of other covariates. Model fits were evaluated using deviance statistics, the Hosmer-Lemeshow ( $\chi^2 8df = 72.9, P = 1.0$ ), and the score statistic due to Brown ( $\chi^2 2df = 88.2, P = 1.0$ ).<sup>11,12</sup>

### Results

Of the 6,705 persons attending four public STD clinics, 35% were either not offered an HIV test ( $n = 208$ ) or declined the offer ( $n = 2,114$ ) (Table 1). Among the 4,383 who obtained a confidential HIV test, half did not receive their results. Thus, only one-third of STD clinic attendees who were eligible for HIV testing actually accepted an HIV test and received their results. This percentage varied by HIV status (Table 1), with HIV-positive clinic attendees being more likely to learn of their test result than HIV-negative persons. We found no difference between the rate men and women received an HIV test result (data not shown). As seen in Table 2, several patient groups were more likely to receive an HIV test result. These were patients who reported HIV testing as a reason for their clinic visit, those who were not requesting an STD examination, and those who had reported no prior HIV test. Conversely, African-Americans were less likely to learn their test results than were other racial or ethnic groups. Self-perceived risk of HIV exposure and having had multiple sex partners were not statistically significant predictors of getting a confidential (HIV) test result. These associations remained similar in the adjusted analysis.

Most patients in this sample reported having had a previous HIV test (Table 2), and 96% of those who were previously tested also reported a corresponding (prior) test date (96%,  $n = 3,886$ ). We found that patients who accepted a confidential HIV test reported a slightly greater interval between HIV tests than those who did not (i.e., analysis of variance  $F = 109.183, P = 0.0001$ ). On average, those who accepted a confidential test reported being tested within 1.7 years ( $SD = 1.6$  years) of their clinic visit, whereas those who did not accept a confidential test reported an intertest interval of 1.1 years ( $SD = 1.3$  years). Only one fourth of those who did not receive a confidential HIV test reported a prior test date less than 6 months before their clinic visit ( $n = 601$ ).

### Discussion

These data suggest that the system failed to deliver HIV test results to a significant majority of eligible STD clinic

TABLE 1. Percentage Requesting an HIV Test and Receiving the Results Among Patients Attending 4 Los Angeles County STD Clinics, by HIV Status, July 1994–July 1995

Characteristic	HIV Positive*		HIV Negative*		Total	
	No.	(%)	No.	(%)	No.	(%)
Did not request a confidential HIV test	52	(45)	2,270	(34)	2,322	(35)
Received a confidential HIV test						
Did not receive test result	16	(14)	2,164	(33)	2,180	(33)
Received test result	47	(41)	2,156	(33)	2,203	(33)
Total	115	(100)	6,590	(100)	6,705	(100)

\*By testing blood specimens unlinked to personal identifying variables.

TABLE 2. Percentage Receiving HIV Test Results and Comparative Odds Ratios Among Patients Attending 4 Los Angeles STD Clinics, July 1994–July 1995

Characteristic	No.	(%)*	No. Receiving HIV Test Results (%)†		Prevalence Odds Ratio (95% CI)			
					Unadjusted‡		Adjusted§	
Reason for visit: requesting an HIV test								
Yes	2,962	(44)	1,453	(49)	3.84	(3.46, 4.27)	5.32	(4.68, 6.04)
No	3,743	(56)	750	(20)	1.00		1.00	
Reason for visit: requesting an STD examination								
Yes	6,254	(93)	1,989	32	1.00		1.00	
No	451	(7)	214	47	1.92	(1.61, 2.32)	1.64	(1.32, 2.04)
Tested previously for HIV infection								
Yes	4,025	(60)	1,206	(30)	1.00		1.00	
No	2,680	(40)	997	(37)	1.39	(1.25, 1.54)	1.33	(1.18, 1.50)
Self-perceived risk of HIV exposure								
Not at all likely	3,979	(59)	1,296	(33)	1.00		1.00	
Somewhat likely	2,137	(32)	702	(33)	1.01	(0.91, 1.13)	1.10	(0.96, 1.25)
Moderately likely	363	(5)	121	(33)	1.04	(0.82, 1.30)	1.04	(0.80, 1.35)
Pretty likely	122	(2)	41	(34)	1.05	(0.72, 1.54)	0.87	(0.56, 1.35)
Very likely	104	(2)	43	(41)	1.46	(0.98, 2.16)	1.34	(0.86, 2.10)
No. of sex partners during the 12 months preceding the STD clinic visit								
1	2,615	(39)	907	(35)	1.00		1.00	
2–5	3,218	(48)	1,032	(32)	0.88	(0.80, 0.99)	1.04	(0.91, 1.19)
6–10	566	(8)	172	(30)	0.82	(0.68, 1.00)	0.97	(0.77, 1.22)
11 or more	306	(5)	92	(30)	0.81	(0.63, 1.05)	0.87	(0.64, 1.18)
Race or ethnicity								
African-American	3,683	(55)	949	(26)	1.00		1.00	
White	506	(8)	190	(38)	1.73	(1.43, 2.10)	1.87	(1.48, 2.37)
Hispanic/Latino	2,348	(35)	990	(42)	2.10	(1.88, 2.34)	2.23	(1.95, 2.59)
Other	168	(2)	74	(44)	2.27	(1.67, 3.08)	2.08	(1.45, 2.98)

\*% of characteristic.

†% of clinic attendees within characteristic category.

‡Mantel-Haenszel estimates of prevalence odds ratios.

§Derived from maximum likelihood estimates of coefficients from logistic regression-model adjusting for HIV antibody test results at the index clinic visit high-risk HIV-related sexual and drug-using behaviors, age group, marital status, clinic, and above characteristics.

patients. About one third did not request an HIV test and one third requested the test but did not receive the results. Thus, only one third of all eligible STD clinic patients received both a test and their results. Even those STD patients who reported higher HIV-related risk behavior (i.e., with a self-perceived risk of HIV and with many sex partners during the prior year) were no more likely than their comparison group to receive a test result.

The objective of our analysis is different from those of prior studies. We assumed everyone seen in these STD clinics was at some level of risk for HIV infection and sought to evaluate whether HIV test results were provided to all. As a result, we were able to evaluate global deficiencies in the overall program and consider ways to improve the use of public monies for testing programs.

Our findings that one third of the study population refused a confidential HIV test are similar to others who reported that as many as 20% to 50% of STD clinic patients refuse confidential HIV testing.<sup>9,13–15</sup> Similarly, other investigators reported that as many as 60% of those who accept

confidential testing fail to return to receive their test results.<sup>3,6</sup>

The sociodemographic characteristics of patients who refuse confidential testing or fail to return for their test results have been reported elsewhere and are generally consistent with our findings.<sup>3,4,6,7,9,15</sup> Although men have been reported to refuse confidential HIV testing at higher rates than women,<sup>14</sup> men appear as likely as women to return for HIV test results.<sup>3,4</sup> Individuals who have been tested for HIV previously seem to return for test results less often than first-time testers.<sup>7</sup> Finally, African-Americans, and sometimes Latinos, have been shown to refuse confidential HIV testing at higher rates and return for their results less often than whites.<sup>3,6</sup>

The patterns that we and others observed in the rate that different ethnic groups receive HIV test results cannot be explained fully by our surveillance data. The use and expectations of public health clinics may account for the observed differences. For example, some ethnic groups may be more likely to refuse testing or fail to return for their confidential HIV test results because they may underestimate their risk

for infection or inaccurately believe that they will be tested for HIV as part of a routine examination.<sup>16</sup>

The reasons STD clinic patients refuse confidential HIV testing services have been evaluated elsewhere.<sup>8,9</sup> Already knowing and not wanting to know one's infection status are two often-stated reasons that patients refuse a confidential HIV test.<sup>8,9</sup> The reasons patients fail to return to the STD clinic for their test results are difficult to ascertain and cannot be discerned from these data.

Our findings are important because there is a greater need now than ever before for individuals to know whether or not they are infected with HIV. Recent advances in clinical care suggest that highly active antiretroviral therapy can decrease (HIV) viral replication rates in acutely infected patients, possibly slowing or halting HIV-related damage to the immune system during treatment.<sup>17</sup> Untreated, HIV type 1 replicates rapidly and continuously,<sup>18</sup> and variants with enhanced replicative capacity appear early in the asymptomatic phase of disease and increase in number as infection endures.<sup>15,19</sup> Also, early diagnosis and supportive medical care may have indirect benefit for public health. Early detection and proper ongoing medical care may serve to decrease comorbidity that may influence infectivity and to provide ample opportunities to facilitate a reduction in the number of HIV-related risk behaviors an individual manifests.<sup>20,21</sup>

These data do not address whether STD clinic patients eventually learn their infection status from subsequent STD clinic visits or other health department programs or community agencies. For example, the Los Angeles County Department of Health Services attempts to contact and refer (for treatment) all STD clinic patients who test HIV positive. We were not able to determine how often such notification took place.

Testing for HIV can be a beneficial tool to slow the epidemic only when people are aware of their test results and act on the knowledge. If people who are tested fail to learn their results, there is less incentive for action, and the cost of testing greatly exceeds the benefit. Understanding the role culture, public policy, and their joint interaction play in our ability to deliver HIV test results to STD clinic patients is essential to implementing a successful HIV testing and counseling program. For example, one factor that may be of major importance is the 7- to 10-day lag between the STD clinic visit and the availability of test results. By using newer rapid tests, counselors at STD clinics could offer immediate results to the many HIV-negative persons and spend more time counseling those who test positive.<sup>22,23</sup>

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