

# Unrecognized HIV Infection Among Patients Attending Sexually Transmitted Disease Clinics

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Patients attending sexually transmitted disease (STD) clinics are at increased risk for infection with HIV.<sup>1,2</sup> For this reason, the US Public Health Service has recommended that counseling and HIV antibody testing services be available at all public STD clinics and that all patients attending these clinics be offered these services.<sup>3</sup>

Anonymous HIV serosurveys, conducted by the Centers for Disease Control and Prevention in collaboration with state and local health departments,<sup>4-6</sup> provide an opportunity to evaluate the extent to which counseling and testing services are reaching these at-risk populations. With the availability of effective antiretroviral drug therapies, persons who are HIV infected can clearly benefit from knowledge of their serostatus and referral into care.<sup>7</sup> Patients with HIV infection who acquire other STDs are at risk for transmitting HIV to their sexual partners; thus, providing them with counseling services<sup>8,9</sup> also may have important public health benefits.

## METHODS

The methods and study design for anonymous, unlinked HIV seroprevalence surveys in STD clinics have been described previously.<sup>6,10</sup> Unlinked HIV testing is performed on blood samples collected for routine clinical purposes (usually for serologic syphilis testing) after personal identifiers have been permanently removed. In this study, serum samples from all patients who had blood drawn for syphilis serologic screening and who had not previously visited the clinic during the year's survey period were included in the serosurvey.

The survey period ranged from 3 months to 1 year during 1997 depending on clinic patient volume. Data routinely obtained and recorded during the STD clinic visit were abstracted from the medical records of patients eligible for inclusion in the survey. The only

**Objectives.** This study examined voluntary HIV testing rates in sexually transmitted disease (STD) clinics.

**Methods.** Anonymous, unlinked surveys of HIV seroprevalence and medical chart abstractions were conducted in 28 STD clinics in 14 US cities in 1997.

**Results.** Among the 52 260 patients included in the anonymous HIV serosurveys, voluntary HIV testing rates by clinic ranged from 30% to 99% (median = 58%). Patients not tested were more likely to be HIV infected than were patients who were tested, even after those with documented HIV infection were excluded, regardless of demographic characteristics, risk group, or STD diagnosis.

**Conclusions.** HIV infection is unrecognized in substantial numbers of patients with HIV infection visiting STD clinics. Efforts are needed to increase HIV testing and counseling of all patients visiting these clinics. (*Am J Public Health.* 2002;92:280-283)

STD diagnoses considered in this analysis were new diagnoses of the following STDs and STD syndromes: syphilis, gonorrhea, chlamydia, genital ulcer disease, cervicitis, nongonococcal urethritis, pelvic inflammatory disease, and trichomoniasis. The survey protocol allowed for abstracting information related to HIV testing at the STD clinic visit and self-reported results of previous HIV tests from the medical chart. This information was routinely collected at 28 clinics from 14 cities (Atlanta, Ga; Baltimore, Md; Boston, Mass; Chicago, Ill; Denver, Colo; Houston, Tex; Los Angeles, Calif; Miami, Fla; New Orleans, La; New York, NY; Newark, NJ; San Francisco, Calif; Seattle, Wash; Washington, DC).

## RESULTS

Of the 52 260 patients tested in unlinked HIV serosurveys (clinic range = 419-3839 patients), 30 809 (59%) came to the clinic with symptoms of an STD, 28% came for an examination but were asymptomatic, and 4% came solely for HIV testing. Most patients were male, between ages 15 and 34, African American, and heterosexual (Table 1). Overall, unlinked survey results showed that 4% were HIV infected.

Among the 28 clinics, voluntary HIV testing rates at the current visit ranged from

30% to 99% (median = 58%). HIV seroprevalence by clinic ranged from 0.6% to 11.5% (median = 4.7%). Among patients who were voluntarily tested, HIV seroprevalence was lower (range = 0.3%-5.8%, median = 2.4%) than among patients who were not voluntarily tested (range = 1.7%-28.6%, median = 7.3%). In all but 1 clinic, where HIV seroprevalence in the 2 groups was similar, HIV seroprevalence was 1.4 to 18 times higher among patients not voluntarily tested than among those voluntarily tested.

Patients not tested were more likely to be HIV infected than were patients who were tested, regardless of demographic characteristics, risk group, or STD diagnosis. Even after patients known to be HIV infected were excluded, seroprevalence was markedly higher among patients who were not tested (Tables 1 and 2).

Patients who were HIV infected were equally or more likely to receive new diagnoses of gonorrhea, primary or secondary syphilis, or genital ulcer disease than were patients who were HIV negative, regardless of testing status (Figure 1). Overall, 43% of the patients who were HIV infected received an STD diagnosis, compared with 35% of the patients who were HIV negative. Among patients who were HIV infected, a diagnosis of an STD at the clinic visit was more common

**TABLE 1—Percentage of Patients Tested for HIV, by Demographic and Risk Group Characteristics, at 28 Sexually Transmitted Disease Clinics in 14 US Cities, 1997**

	No.	Voluntarily Tested		Not Tested		
		%	% HIV+	%	% HIV+	% HIV+ (Excluding Patients Reported as +)
Total	52260	61	2.0	39	7.4	4.8
Male	33221	59	2.4	41	9.0	6.0
Female	19039	66	1.2	34	3.8	2.3
Age, y						
<15	814	41	3.3	59	6.0	5.0
15-24	17939	65	0.9	35	1.6	1.2
25-34	18353	62	2.4	38	8.0	5.3
35-44	10166	60	2.7	40	13.9	8.8
>44	4988	56	2.7	44	10.1	6.5
Race/ethnicity <sup>a</sup>						
African American	31649	58	2.3	42	7.0	4.9
Asian or Pacific Islander	888	59	0.2	41	3.1	2.0
Hispanic	10236	72	1.5	28	6.0	3.7
White	8153	62	1.4	38	10.6	5.8
Other	790	61	1.5	39	6.0	2.7
Risk group <sup>b</sup>						
Men who have sex with men	4228	49	9.1	51	30.6	19.7
Injection drug users	1260	61	5.1	39	22.2	7.3
Heterosexual persons	46772	62	1.4	38	4.2	3.1
HIV infected <sup>c</sup> (total)	2112	30	...	70	...	...
HIV infected <sup>c</sup> (excluding patients reported as +)	1435	35	...	65	...	...

<sup>a</sup>Race/ethnicity was not determined in 544 patients (1%).

<sup>b</sup>Injection drug user subgroup does not include men who have sex with men. Heterosexual subgroup does not include men who have sex with men or injection drug users.

<sup>c</sup>Based on unlinked HIV serosurveys.

for patients not tested (46%) than for patients who were tested (34%). When this analysis was limited to patients attending the clinic with reported symptoms of an STD (59% of the population studied), a similar pattern was observed, although STD rates were higher for all groups.

Of the 52 260 patients included in the serosurveys, 27 738 (53%) reported having a previous HIV test and 14 750 (28%) reported not having a previous test. For 9 772 (19%), no information about prior testing was available. Among those reporting a previous positive test result (n=740), 91% had

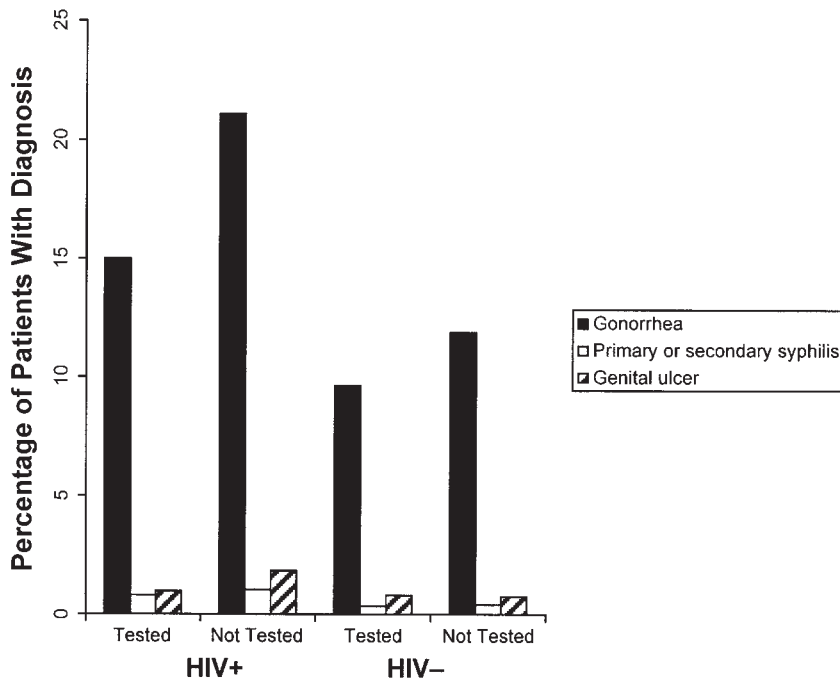
positive test results in the serosurveys; among those reporting a previous negative test result (n=24 240), 1.9% now had positive test results; and among those reporting a previous indeterminate result (n=52), 21% had positive test results. Of the 2 706 patients for whom previous reported test re-

**TABLE 2—Percentage of Patients Tested for HIV, by Sexually Transmitted Disease Diagnosis During the Visit, at 28 Sexually Transmitted Disease (STD) Clinics in 14 US Cities, 1997**

Diagnosis	No.	Voluntarily Tested		Not Tested		
		%	% HIV+	%	% HIV+	% HIV+ (Excluding Patients Reported as +)
Primary or secondary syphilis	206	56	4.4	44	16.5	11.6
Genital ulcer <sup>a</sup>	405	61	2.4	39	16.5	12.1
Gonorrhea	5646	55	3.0	45	12.3	8.4
Any STD <sup>b</sup>	18 613	58	2.0	42	7.8	5.5
No STD	33 647	62	1.9	38	6.8	4.3

<sup>a</sup>Includes primary syphilis.

<sup>b</sup>Includes syphilis at any stage, gonorrhea, chlamydia, genital ulcer, cervicitis, nongonococcal urethritis, pelvic inflammatory disease, trichomoniasis.



**FIGURE 1—Percentage of patients with a diagnosis of gonorrhea, syphilis, or genital ulcer disease, grouped by testing and HIV status.**

sults were unavailable, 3.4% had positive test results. Among those reporting a previous HIV-negative result, 63% were tested at the STD clinic visit, whereas 21% of those reporting a previous HIV-positive result were tested.

## DISCUSSION

We found that many patients visiting STD clinics are not being tested for HIV. Although the proportion of patients receiving voluntary HIV testing services varied by clinic, the overall testing rates observed (61%; median clinic rate=58%) were no higher than those reported much earlier in the epidemic at individual clinics<sup>11–13</sup> before the availability of combination antiretroviral therapy.

All STD clinics participating in these serosurveys routinely offer voluntary HIV counseling and testing services. However, many HIV counseling and testing services are available near STD clinics but are not necessarily integrated with other STD services.<sup>14</sup> A patient visiting an STD clinic who wants to un-

dergo HIV testing may need to wait longer, pay more, and receive an additional needlestick. Patients should always be able to decline specific diagnostic tests; however, if HIV and STD services were better integrated, more patients who were offered HIV testing would likely accept it, and more patients who are HIV positive could be identified, counseled, and referred for treatment.

Clearly, some persons attending STD clinics already know from prior testing that they are HIV positive. Of the 2112 persons found to be HIV positive in these unlinked serosurveys, 32% reported a previous HIV-positive test result, and another 24% were voluntarily tested at the STD clinic visit. Others may have denied knowledge of their serostatus, or it may not have been recorded in the medical chart. However, for more than 40% of the HIV-infected population, no evidence indicated that patients knew or were about to learn their HIV status.

Compared with patients without HIV infection, a higher proportion of persons with HIV infection visiting these clinics, regardless

of testing status, were given new STD diagnoses, indicating that they are continuing to engage in risk behaviors that may transmit HIV to their sexual partners. These data suggest that although all STD clinic patients should be counseled about reducing their risks for transmitting or acquiring HIV and other STDs, prevention efforts should be directed specifically toward those individuals who are HIV infected. Because these persons represent a relatively small proportion of the overall clinic population (<4%), it could be time- and cost-efficient to concentrate extra counseling and follow-up efforts on this group.<sup>8</sup>

To the extent that counseling is linked to testing or knowledge of serostatus, many patients infected with HIV are currently not being counseled. By separating counseling from HIV testing, patients with HIV infection who do not need retesting because their HIV infection status is already documented can benefit from patient-centered risk reduction counseling, which has been shown to prevent new STDs.<sup>9</sup> When patients with HIV infection and their clinicians do not know their status, HIV testing is a necessary first step for providing such counseling and referral for treatment, which has been shown to reduce morbidity and mortality.<sup>15,16</sup>

Our findings show that HIV testing programs currently in place in STD clinics are not reaching substantial numbers of patients, including many who are unaware that they are infected with HIV. Many patients with HIV infection visiting these clinics have new STDs and may be transmitting HIV to sexual partners. Prevention efforts directed toward these persons who are HIV infected could have a significant effect on both the individuals' and the public's health. First steps should be removing barriers to HIV testing in STD clinics and providing patient-centered risk reduction counseling. ■

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### Contributors

H. Weinstock, L. Linley, and M. Gwinn planned the study. H. Weinstock analyzed the data and wrote the paper. M. Dale supervised the conduct of the study and assisted with data analysis. M. Gwinn contributed to the writing of the paper. All authors assisted with drafting the paper and approved the final version.

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