

Research Letter

AIDS 2009, **23**:000–000

Updated outcomes of partner notification for human immunodeficiency virus, San Francisco, 2004–2008

Julia L. Marcus, Kyle T. Bernstein and Jeffrey D. Klausner

An evaluation of HIV-partner notification demonstrated its effectiveness in identifying new cases of HIV infection in San Francisco. Findings suggested that health departments should consider focusing efforts on reducing the time between diagnosis and interview. Such data are critical for the prioritization of HIV-case-finding activities and enable local health departments to measure the costs of partner services, as well as identify areas for quality improvement.

Introduction

HIV incidence in the USA was recently estimated to be 40% higher than previously thought, with over 55 000 new infections every year [1]. Although the value of partner notification in the control of sexually-transmitted diseases (STD) is widely accepted, such services are underused for HIV [2]. To advance the role of evidence-based practices such as partner notification in the control of HIV, in November 2008, the Centers for Disease Control and Prevention (CDC) released its updated 'Recommendations for Partner Services Programs for HIV Infection, Syphilis, Gonorrhoea, and Chlamydial Infection' [3]. The San Francisco Department of Public Health conducts partner notification for county residents with newly-diagnosed HIV infection. To evaluate outcomes and prioritize interviews, we determined the effectiveness of partner notification in identifying new HIV cases.

Methods

Similar to previously described methods, we elicited and contacted recent sex partners from patients newly diagnosed with HIV, notified them of their possible exposure, and encouraged HIV testing in those not known to be HIV-infected [4]. We measured the number of index interviews that yielded a newly-diagnosed HIV-infected partner and the number of index patients needed to interview (NNTI). We used two-sided chi-square tests

to assess whether the frequency of new-case identification differed by index-case characteristics. Analyses were conducted with SAS, version 9.1 (SAS Institute, Cary, North Carolina, USA).

Results

From 1 January 2004 through 30 June 2008, 615 index patients with newly-diagnosed HIV infection were assigned for partner notification; 12.9% (79 of 615) were not located. Of the remaining 536, 89.7% (481) were interviewed and 10.3% (55) refused. Of the 481 interviewed patients, 9.6% (46) had acute HIV infection, 89.2% were men who have sex with men, and the median age was 34 years (Table 1). Most (81.5%) were diagnosed at the municipal STD clinic, and approximately half (45.7%) were interviewed within 2 weeks of diagnosis.

The 481 interviewed patients provided contact information for a total of 419 sex partners; 54.7% of index patients did not name any sex partners. Of the 419 partners, 13.4% ($n=56$) were not located. Of the remaining 363, 86.2% ($n=313$) were interviewed, 9.4% ($n=34$) refused, and 4.4% ($n=16$) resided outside of San Francisco or had no outcome recorded for undocumented reasons. Of those interviewed, 30.4% ($n=95$) reported being HIV-infected. Among those not known to be HIV-infected, 91.7% ($n=200$) were tested for HIV infection and 22.0% ($n=44$) were newly identified as HIV-infected. Overall, we needed to interview 11 (481/44) index patients to detect a new infection among partners (Table 1). Interviews conducted within 2 weeks of diagnosis yielded more new positives (NNTI = 8) than those conducted more than 2 weeks after diagnosis (NNTI = 21). Interviewing within 2 weeks of diagnosis was the only factor significantly associated with an index patient yielding a newly-identified HIV-infected partner (12.7% vs. 4.8%, $P=0.008$).

Discussion

Partner notification successfully identified 44 new cases of HIV infection in San Francisco, with 22% of tested partners newly identified as HIV-infected; that is comparable to the previously reported average of 20% of tested partners being newly diagnosed [5]. Overall, 11 index patients needed to be interviewed to find one new

DOI:10.1097/QAD.0b013e32832921a7

Table 1. Characteristics and partner outcomes of HIV cases interviewed for partner notification, San Francisco, January 2004 through June 2008.

	Index interviews		Interviews yielding newly-infected partners		<i>P</i> ^a	Newly-infected partners	
	<i>n</i>	%	<i>n</i>	%		<i>n</i>	NNTI
Overall	481	100.0	43	8.9		44	11
Year assigned for interview					0.668		
2004	106	22.0	9	8.5		9	12
2005	98	20.4	8	8.2		8	12
2006	100	20.8	6	6.0		7	14
2007	124	25.8	14	11.3		14	9
2008 (half year)	53	11.0	6	11.3		6	9
Duration of HIV infection					0.546		
Nonacute	435	90.4	40	9.2		41	11
Acute	46	9.6	3	6.5		3	15
Sex and orientation					0.158		
MSM	429	89.2	36	8.4		37	12
Straight male	29	6.0	2	6.9		2	15
Female	17	3.5	4	23.5		4	4
Transgender	6	1.2	1	16.7		1	6
Age (years, median = 34)					0.736		
<30	167	34.7	18	10.8		18	9
30–39	176	36.6	13	7.4		13	14
40–49	107	22.2	9	8.4		9	12
≥50	31	6.4	3	9.7		4	8
History of syphilis interview					0.342		
No	443	92.1	38	8.6		39	11
Yes	38	7.9	5	13.2		5	8
Time from diagnosis to interview					0.008		
2 weeks or less	220	45.7	28	12.7		29	8
More than 2 weeks	250	52.0	12	4.8		12	21
Provider type					0.427		
STD clinic	392	81.5	37	9.4		38	10
Public hospital	47	9.8	3	6.4		3	16
Community clinics	22	4.6	0	0.0		0	NC
Emergency room	19	4.0	3	15.8		3	6
Detention	1	0.2	0	0.0		0	NC

MSM, men who have sex with men; NC, not calculable; NNTI, number needed to interview to identify a newly HIV-infected partner; STD, sexually transmitted disease.

^aTwo-sided chi-square test.

case, which is substantially lower than the average of 36 in similar jurisdictions [2]. Our findings suggest that earlier interviews should be prioritized and health departments should consider focusing efforts on reducing the time between diagnosis and interview. Such data are critical for the prioritization of HIV-case-finding activities and enable local health departments to measure the costs of partner services, as well as identify areas for quality improvement. Finally, our findings are consistent with the recent National AIDS Strategy that calls for increasing the role of evidence-based prevention and case-detection initiatives in the fight to eliminate HIV [6].

Acknowledgements

All authors were responsible for study concept and design, drafting the manuscript, and critical revisions. Ms J.L. Marcus had full access to the data and takes responsibility for its integrity and the accuracy of the analysis. Dr J.D. Klausner supervised the study. The HIV Prevention

Section of the San Francisco Department of Public Health financially supports routine HIV testing and partner-notification services through grants from the State of California and the Centers for Disease Prevention and Control. We thank Dr Grant Colfax, John Melichar, and Teri Dowling for their support of these programs. This work was also supported in part by CDC 5H25PS904371.

STD Prevention and Control Services, San Francisco Department of Public Health, San Francisco, California, USA.

Correspondence to Julia L. Marcus, Epidemiologist, STD Prevention and Control Services, San Francisco Department of Public Health, 1360 Mission Street, Suite 401, San Francisco, CA 94103, USA.

Tel: +1 415 355 2025; fax: +1 415 554 9636;

e-mail: julia.marcus@sfdph.org

Received: 23 December 2008; accepted: 8 January 2009.

References

1. Hall HI, Song R, Rhodes P, Prejean J, An Q, Lee LM, *et al.* **Estimation of HIV incidence in the United States.** *JAMA* 2008; **300**:520–529.
2. Golden MR, Hogben M, Potterat JJ, Handsfield HH. **HIV partner notification in the United States: a national survey of program coverage and outcomes.** *Sex Transm Dis* 2004; **31**:709–712.
3. Centers for Disease Control and Prevention. **Recommendations for Partner Services Programs for HIV Infection, Syphilis, Gonorrhea, and Chlamydial Infection.** *MMWR Early Release* 2008; **57**:1–83.
4. Ahrens K, Kent CK, Robert KP, Nieri GBA, Reynolds ABA, Philip S, Klausner JD. **HIV partner notification outcomes for HIV-infected patients by duration of infection, San Francisco, 2004 to 2006.** *J Acquir Immune Defic Syndr* 2007; **46**:479–484.
5. Hogben M, McNally T, McPheeters M, Hutchinson A, Task Force on Community Preventive Services. **The effectiveness of HIV partner counseling and referral services in increasing identification of HIV-positive individuals: a systematic review.** *Am J Prev Med* 2007; **33** (Suppl 2):S89–S100.
6. National AIDS strategy: a call to action. <http://www.nationalaidstrategy.org/>. [Accessed 23 December 2008]