Newly Identified HIV Infections in Correctional Facilities, United States, 2007

Michelle VanHandel, MPH, John F. Beltrami, MD, Robin J. MacGowan, MPH, Craig B. Borkowf, PhD, and Andrew D. Margolis, MPH

We used Centers for Disease Control and Prevention HIV Counseling and Testing System data from 2007 to determine the percentage and characteristics of persons newly identified as HIV-positive in US correctional facilities. The newly identified HIV positivity was 0.7%, and 30% of detainees newly identified with HIV were categorized as having low-risk heterosexual contact or no acknowledged risk. Correctional facilities should provide detainees with routine opt-out HIV testing, unless the prevalence of previously undiagnosed HIV infection has been documented to be less than 0.1%. (*Am J Public Health.* 2012;102:S201–S204. doi:10.2105/AJPH.2011.300614)

At the end of 2006, 2.1 million persons were detained in state and local correctional facilities in the United States.[1] The overall HIV seroprevalence reported by the 50 state prison systems was 4.5 times as high as that for the general US population.[2,3] Correctional facilities represent an important venue for delivering HIV services, especially for detainees who may lack access to primary care and prevention services in their communities,[4–7] and for racial/ethnic minorities who are incarcerated at higher rates[1] and who are disproportionately affected by HIV.[3]

In September 2006, the Centers for Disease Control and Prevention (CDC) released revised HIV testing recommendations to encourage HIV screening for persons aged 13 to 64 years in health care settings. Persons should be notified that testing will be performed unless they decline (opt-out screening) or the prevalence of previously undiagnosed HIV infection is documented to be less than 0.1%.[8]

HIV testing in correctional facilities benefits both detainees and the communities to which they may return.[9] Early diagnosis of persons infected with HIV allows for linkage to care and treatment. Antiretroviral therapy reduces the patient's viral load, improves health outcomes, and significantly reduces the risk of transmission to others.[10,11]

METHODS

We analyzed the CDC HIV Counseling and Testing System (HIV CTS) database to determine the newly identified HIV positivity and the characteristics associated with detainees being newly identified as HIV-positive in US correctional facilities in 2007. Data were included from 16 of 59 state or city health departments reporting complete test-level data on 1000 or more HIV tests conducted in prisons or jails. Data with missing values (e.g., missing test results) or out-of-range values for key characteristics (e.g., younger than 13 years or older than 64 years) were excluded.

Demographic characteristics included gender, age, race/ethnicity, and HIV test region (state and city health departments were grouped into US Census Bureau geographic regions).[12] Risk category was ordered hierarchically based on the greatest presumed likelihood of HIV transmission.[13] "Newly identified HIV-positive" was defined as a record for which there was a current HIV-positive test, but no history of an HIV-positive test. Multiple logistic regression models were constructed to determine the association of detainee characteristics with being a newly identified HIV-positive person.

RESULTS

The final dataset included 106 122 tests from 16 health departments. The overall HIV positivity was 0.9%, the newly identified HIV positivity was 0.7%, and 30% of newly identified HIV-positive detainees reported only low-risk heterosexual contact or no acknowledged risk (Table 1).

Characteristics most strongly associated with being newly identified HIV-positive included being female (adjusted odds ratio [AOR] = 2.30; 95% confidence interval[CI] = 1.94, 2.72), aged 40 to 49 years (AOR = 2.20; 95% CI = 1.80, 2.68), Black (AOR = 2.42; 95% CI = 1.99, 2.95), tested in the South (AOR = 2.20; 95% CI = 1.76, 2.76), in the men who have sex with men (MSM) and injection drug user (IDU; AOR = 5.44; 95% CI = 3.20, 9.25) or MSM-only (AOR = 8.14; 95% CI = 6.15, 10.76) risk categories, and first-time tested (AOR = 2.06; 95% CI = 1.75, 2.42; Table 2).

DISCUSSION

The newly identified HIV positivity in our report (0.7%), similar to other reports,[14–18] supports routine opt-out HIV testing in correctional health care facilities.[8,19] Detainees who were women, aged 40 to 49 years, Black, tested in the South, in the MSM and IDU or MSM-only risk categories, and first-time tested in a correctional facility were more likely to be newly identified as HIV-positive. The limited number of studies that previously determined characteristics associated with being newly identified HIV-positive reported similar results.[14,15]

Our study supports previous findings[15] that a high proportion of HIV cases occurred among persons who might not perceive or acknowledge themselves to be at high risk (i.e., low-risk heterosexual contact, no acknowledged risk). A substantial proportion of newly identified HIV-positive detainees (30%) would not have been diagnosed if testing were conducted only among those who perceived and reported themselves as high risk for HIV.

Routine opt-out HIV testing could diagnose detainees infected with HIV who were not previously diagnosed in the community,[18,20] could diagnose HIV infections earlier in the course of disease,[21] and was generally acceptable to detainees.[22] When testing was augmented with treatment and prevention programs, screening was cost-effective, and a substantial number of cases of HIV were prevented.[23,24] Recent publications offer strategies for implementing routine HIV testing in correctional facilities, including guidance for integrating HIV testing into correctional facilities to balance individual and public health needs.[25,26]

Our findings were limited because test results could not be linked to unique individuals, and individuals might have received multiple tests. The type of correctional facility and the health care services available could not be determined from the data. Also, HIV CTS data

TABLE 1—HIV Positivity by Demographic and HIV Testing-Related Characteristics for Tests Conducted at Correctional Facilities: 16 Health Departments, United States, 2007

Characteristic[a]	Total Tests, No. (%)	HIV-Positive		
		Total, No. (%)	Previously Identified, No. (%)	Newly Identified, No. (%)
Total	106 122 (100.0)	1006 (0.9)	251 (0.2)	755 (0.7)
Gender				
Male	80 278 (75.7)	640 (0.8)	177 (0.2)	463 (0.6)
Female	25 144 (23.7)	347 (1.4)	67 (0.3)	280 (1.1)
Age group, y				
13–19	11 448 (10.8)	26 (0.2)	5 (0.0)	21 (0.2)
20–29	41 001 (38.6)	252 (0.6)	53 (0.1)	199 (0.5)
30–39	25 784 (24.3)	314 (1.2)	82 (0.3)	232 (0.9)
40–49	21 378 (20.1)	308 (1.4)	73 (0.3)	235 (1.1)
50–64	6511 (6.1)	106 (1.6)	38 (0.6)	68 (1.0)
Race/ethnicity				
White	32 856 (31.0)	215 (0.7)	55 (0.2)	160 (0.5)
Black	50 308 (47.4)	634 (1.3)	141 (0.3)	493 (1.0)
Hispanic	19 333 (18.2)	142 (0.7)	49 (0.2)	93 (0.5)
Asian/Pacific Islander	718 (0.7)	2 (0.3)	2 (0.3)	0
American Indian/Alaska Native	636 (0.6)	5 (0.8)	1 (0.2)	4 (0.6)
Other	2271 (1.4)	8 (0.3)	3 (0.1)	5 (0.2)
Region				
Northeast	30 793 (29.0)	180 (0.6)	62 (0.2)	118 (0.4)
Midwest	2404 (2.3)	11 (0.5)	6 (0.3)	5 (0.2)
South	60 491 (57.0)	743 (1.2)	167 (0.3)	576 (0.9)
West	12 434 (11.7)	72 (0.6)	16 (0.1)	56 (0.5)
Risk category				
MSM/IDU	681 (0.6)	29 (4.3)	13 (1.9)	16 (2.4)
MSM only	2330 (2.2)	129 (5.5)	46 (2.0)	83 (3.6)
IDU	13 672 (12.9)	141 (1.0)	45 (0.3)	96 (0.7)
High-risk heterosexual contact[b]	47 452 (44.7)	348 (0.7)	72 (0.1)	276 (0.6)
Low-risk heterosexual contact[c]	23 074 (21.7)	193 (0.8)	38 (0.2)	155 (0.7)
No acknowledged risk	12 049 (11.4)	92 (0.8)	24 (0.2)	68 (0.6)
Other[d]	2704 (2.6)	42 (1.6)	5 (0.2)	37 (1.4)
Testing history				
Previously tested	75 696 (71.3)	753 (1.0)	251 (0.3)	502 (0.7)
First-time tested	30 426 (28.7)	253 (0.8)	NA	253 (0.8)
Provision of test results and posttest counseling				
No	9038 (8.5)	137 (1.5)	69 (0.8)	68 (0.7)
Yes	94 667 (89.2)	851 (0.9)	180 (0.2)	671 (0.7)

Note. IDU = injection drug user; MSM = men who have sex with men; NA = not applicable. Data from the following 16 health departments were included: CA (excluding San Francisco and Los Angeles), DE, DC, FL, GA, LA, MA, MI, NY (excluding New York City), OH, OR, PA (excluding Philadelphia), TX (excluding Houston), VA, San Francisco, and Los Angeles.

[a]The number of records for each variable does not sum to the total number of records because of missing data. The number (%) of missing values for the selected variables were as follows: gender, 700 (0.7%); race/ethnicity, 812 (0.8%); risk category, 4160 (3.9%); and posttest counseling, 2417 (2.3%).

[b]Person reporting heterosexual contact who also reported any of the following: sex with partner at risk, a diagnosis of a sexually transmitted disease, exchange of sex for drugs or money, noninjection drug use during sex, or a victim of sexual assault.

[c]Person reporting heterosexual contact and no other risk factor.

[d]Person reporting other risk factors (i.e., perinatal exposure, hemophilia, receipt of blood transfusion, or health care exposure).

from 16 US health departments might not represent all CDC-funded HIV testing in US correctional facilities.

Correctional health care facilities should provide detainees with routine opt-out HIV testing as recommended by the CDC, unless the prevalence of previously undiagnosed HIV infection has been documented to be less than 0.1%.[8] Guidance from the CDC should

TABLE 2—Characteristics Associated With Being Newly Identified HIV-Positive in a Correctional Facility: 16 Health Departments, United States, 2007

Characteristic[a]	Total, No.	Newly Identified HIV-positive Tests		
		No. (%)	OR (95% CI)	AOR[b] (95% CI)
Total[c]	105 871	755 (0.7)		
Gender				
Male	80 101	463 (0.6)	1.00 (Ref)	1.00 (Ref)
Female	25 077	280 (1.1)	1.94 (1.67, 2.26)	2.30 (1.94, 2.72)
Age group, y				
13–19	11 443	21 (0.2)	0.38 (0.23, 0.59)	0.36 (0.23, 0.57)
20–29	40 948	199 (0.5)	1.00 (Ref)	1.00 (Ref)
30–39	25 702	232 (0.9)	1.87 (1.54, 2.27)	1.93 (1.59, 2.36)
40–49	21 305	235 (1.1)	2.28 (1.88, 2.77)	2.20 (1.80, 2.68)
50–64	6473	68 (1.0)	2.17 (1.62, 2.88)	2.02 (1.52, 2.69)
Race/ethnicity				
White	32 801	160 (0.5)	1.00 (Ref)	1.00 (Ref)
Black	50 167	493 (1.0)	2.02 (1.69, 2.44)	2.42 (1.99, 2.95)
Hispanic	19 284	93 (0.5)	0.99 (0.76, 1.29)	1.32 (1.00, 1.73)
Asian/Pacific Islander	716	0 (0.0)	0.20 (0.00, 1.07)	NA
American Indian/Alaska Native	635	4 (0.6)	1.29 (0.35, 3.39)	1.59 (0.58, 4.35)
Other	1457	4 (0.3)	0.56 (0.15, 1.47)	1.16 (0.42, 3.15)
Region				
Northeast	30 731	118 (0.4)	1.00 (Ref)	1.00 (Ref)
Midwest	2398	5 (0.2)	0.54 (0.17, 1.30)	0.52 (0.21, 1.28)
South	60 324	576 (1.0)	2.50 (2.05, 3.08)	2.20 (1.76, 2.76)
West	12 418	56 (0.5)	1.18 (0.84, 1.63)	1.10 (0.78, 1.55)
Risk category				
MSM/IDU	668	16 (2.4)	3.62 (2.01, 6.12)	5.44 (3.20, 9.25)
MSM	2284	83 (3.6)	5.57 (4.20, 7.34)	8.14 (6.15, 10.76)
IDU	13 627	96 (0.7)	1.05 (0.80, 1.36)	1.36 (1.04, 1.78)
High-risk heterosexual contact[d]	47 380	276 (0.6)	0.86 (0.71, 1.06)	0.96 (0.78, 1.18)
Low-risk heterosexual contact[e]	23 036	155 (0.7)	1.00 (Ref)	1.00 (Ref)
No acknowledged risk	12 025	68 (0.6)	0.84 (0.62, 1.12)	0.73 (0.54, 0.97)
Other[f]	2699	37 (1.4)	2.05 (1.39, 2.96)	1.36 (0.94, 1.99)
Test history				
Previously tested	75 445	502 (0.7)	1.00 (Ref)	1.00 (Ref)
First-time tested	30 426	253 (0.8)	1.25 (1.07, 1.46)	2.06 (1.75, 2.42)

Note. AOR = adjusted odds ratio; CI = confidence interval; IDU = injection drug user; MSM = men who have sex with men; NA = not applicable; OR = odds ratio. Data from the following 16 health departments were included: CA (excluding San Francisco and Los Angeles), DE, DC, FL, GA, LA, MA, MI, NY (excluding New York City), OH, OR, PA (excluding Philadelphia), TX (excluding Houston), VA, San Francisco, and Los Angeles.

[a]The number of records for each variable does not sum to the total number of records because of missing data. The number (percentage) of missing values for the selected variables were as follows: gender, 700 (0.7%); race/ethnicity, 812 (0.8%); and risk category, 4160 (3.9%).

[b]The adjusted regression analysis included test history, gender, age group, race/ethnicity, region, and risk category.

[c]Excludes 251 records with a history of an HIV-positive test.

[d]Person reporting heterosexual contact who also reported any of the following: sex with partner at risk, a diagnosis of a sexually transmitted disease, exchange of sex for drugs or money, noninjection drug use during sex, or a victim of sexual assault.

[e]Person reporting heterosexual contact and no other risk factor.

[f]Person reporting other risk factors (i.e., perinatal exposure, hemophilia, receipt of blood transfusion, or health care exposure).

be used to assist in developing and implementing an appropriate HIV screening program in correctional facilities.[25] ■

About the Authors

Michelle VanHandel and John F. Beltrami are with the Program Evaluation Branch, Robin J. MacGowan and Andrew D. Margolis are with the Prevention Research Branch, and Craig B. Borkowf is with the Quantitative Sciences and Data Management Branch, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Division of HIV/AIDS Prevention, Centers for Disease Control and Prevention, Atlanta, GA. Michelle VanHandel is also with the Association of Schools of Public Health, Atlanta.

Correspondence should be sent to Michelle VanHandel, 1600 Clifton Road, NE, Mail stop E-59, Atlanta, GA 30333 (e-mail: ioq4@cdc.gov). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.

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Contributors

M. VanHandel led the writing, conducted the analysis, and interpreted the findings. J. F. Beltrami conceived and supervised the study, and contributed substantially to the writing and to the interpretation of the findings. R. J. MacGowan and A. D. Margolis helped interpret the findings, reviewed drafts of the article, and consulted as subject matter experts regarding HIV testing in correctional facilities. C. B. Borkowf helped review the analysis, helped interpret the findings, and reviewed drafts of the article.

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Human Participant Protection

No protocol approval was needed for this study.

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Risk Compensation: A Male Phenomenon? Results From a Controlled Intervention Trial Promoting Helmet Use Among Cyclists

Antoine Messiah, MD, PhD, DSc, Aymery Constant, PhD, Benjamin Contrand, MS, Marie-Line Felonneau, PhD, and Emmanuel Lagarde, PhD, DSc

Prevention tools are challenged by risky behaviors that follow their adoption. Speed increase following helmet use adoption was analyzed among bicyclists enrolled in a controlled intervention trial. Speed and helmet use were assessed by video (2621 recordings, 587 participants). Speeds were similar among helmeted and nonhelmeted female cyclists (16.5 km/h and 16.1 km/h, respectively) but not among male cyclists (helmeted: 19.2 km/h, nonhelmeted: 16.8 km/h). Risk compensation, observed only among male cyclists, was moderate, thus unlikely to offset helmet preventive efficacy. (*Am J Public Health.* 2012;102:S204–S206. doi:10.2105/AJPH.2012.300711)

Public health measures based on diffusion of preventive innovations can be undermined by risk compensation: feeling safer makes some people adopt riskier behaviors.[1–13] Despite documented effectiveness of helmet use for the prevention of injuries,[14] its benefit in bicyclists is disputed; the documentation is insufficient, especially among adult bicyclists outside of a sport or recreation context.[15–18] Studies of risk compensation by helmet users in the context of recreational sports have yielded equivocal results.[12,19–22] In the present study, we aimed to assess the speed of new helmet users among adult urban bicycle riders enrolled in a controlled intervention trial.

METHODS

An intervention trial promoting bicycle helmet use was performed at a municipal center in Bordeaux, France. We recruited 1798 participants from June 2009 to August 2010; only individuals declaring that they were borrowing a bicycle for their own use were included.

Sociodemographic variables (gender, age, education level, occupation), history of bicycle injuries in the last 12 months, and helmet use in the past month were collected through a standardized questionnaire.

Speed Determination and Observation of Helmet Use

Seven observation sites were deployed in Bordeaux. Each observation spot had 2 cameras: a first camera with an image analysis processor was programmed to detect moving objects, isolate cyclists, and calculate speed; it shot cyclists from above. A second high-definition camera automatically shot a series of photos of each detected cyclist from behind. All cameras collected data 6 hours a day, 7 days a week.

Data Analysis

Participants who reported previous helmet use (n = 241) were excluded. The characteristics of the 1557 remaining participants are reported elsewhere.[23] The cameras recorded 2621 moves made by 587 of these participants. Participants who were not seen by any of the cameras were excluded. Each participant's recorded move was considered a statistical unit. Because participants could be observed several times, we used Generalized Estimating Equation techniques to analyze repeated correlated measurements[24–26];