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Brief Report: HIV Testing and Risk Among Justice-Involved Youth

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Abstract

Justice-involved youth have a number of risk factors for HIV infection, including high rates of substance use, psychiatric comorbidities, and risky sexual behaviors. Although detained youth are likely to receive health care—which may include HIV testing—court-involved, non-incarcerated (CINI) youth may be unlikely to receive HIV testing services either before or during their justice involvement. However, the relationship between risk factors and HIV testing among CINI youth is largely unknown. We explored the association between HIV testing and factors commonly associated with both HIV testing and HIV risk among 173 CINI youth with identified behaviors that put them at risk for HIV acquisition. Only 15.6% of participants reported a lifetime history of HIV testing, despite high rates of sexual and substance use risk behaviors. Age (older), gender (female), sexual orientation (non-heterosexual), recent marijuana use, lifetime use of other drugs, history of a sexually transmitted infection, pap smear in the past year and history of mental health/substance use treatment were all significantly associated with lifetime HIV testing. The extremely low testing rates in this sample emphasize that the juvenile justice system outside of detention is not adequately addressing youths' needs related to HIV testing or ensuring access to testing services for youth at risk of contracting HIV. Results suggest that additional efforts are needed to connect justice-involved youth to healthcare more broadly and HIV testing in particular.

Keywords

juvenile justice; HIV testing; HIV risk; court-involved non-incarcerated youth

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INTRODUCTION

Arrested and detained youth commonly engage in a number of behaviors placing them at high risk of HIV infection (1). When justice-involved youth are detained, they gain access to medical testing and treatment—including HIV testing, which may be less accessible to justice-involved youth who are not incarcerated (2). Court-involved, non-incarcerated (CINI) youth face elevated risk of HIV from high rates of substance use, psychiatric comorbidity, and risky sexual behaviors (e.g., 3) but may not commonly receive HIV testing (2). Importantly, CINI youth make up the large majority (nearly 80%) of justice-involved youth (4).

Among youth generally, receipt of HIV testing is associated with being female, identifying as a racial or ethnic minority youth, having a higher number of sexual partners (5), being sexually active, failure to use a condom (6), same-sex activity among males or sexual activity with a male who has engaged in same-sex sexual activity, history of sexually transmitted infection (STI), using substances during sex, and receipt of healthcare (7). Many of these factors are also risk factors for HIV infection (7).

In addition to the above risk factors, a variety of psychosocial and interpersonal or family variables may be associated either with risk of HIV infection or with likelihood of seeking HIV testing. Lower psychosocial maturity may make adolescents more likely to engage in a large number of risky behaviors, including those that increase risk of HIV infection (8), or may reduce the likelihood that a youth will seek HIV testing. The personal responsibility domain of psychosocial maturity may particularly relate to testing behavior, as youth functioning more independently may be more likely to seek sexual healthcare. A lack of sexual health knowledge has been posited as a barrier to HIV testing (5), and lack of familiarity with protective measures (e.g., proper condom use) may reduce youths' ability to mitigate HIV risk. Finally, family relationships may help explain adolescents' risky behaviors. Parental norms and supervision regarding adolescent sexual activity are associated with at least some aspects of sexual risk taking; for example, parental approval of adolescent sexual activity and low expectations about adolescent supervision/low levels of monitoring are associated with increased sexual activity and reduced contraceptive use (e.g., 9; 10) Additionally, more open parental sexual communication with adolescents is associated with reduced sexual risk taking (i.e., number of partners and condom usage; 11). However, the association between these psychosocial and family variables and adolescent HIV testing is largely unknown, particularly among justice-involved youth samples.

To date, only a single study of 60 youth has explored HIV testing rates among CINI youth. In this sample of substance-using CINI youth, only 22% of youth reported ever having been tested for HIV (2). This rate is comparable to the rate for youth generally (5) but much lower than the rate among urban at-risk youth (72%; 7), despite the generally high risk of justice-involved youth. Among incarcerated adolescents, testing rates are low—35% of girls and 25% of boys (12)—but constitutionally mandated access to testing in detention facilities may address the needs of these youth. For CINI youth, lifetime testing was associated with being female, identifying as a racial or ethnic minority, and lifetime sexual activity (2). However, the relationship between risk factors and HIV testing among CINI youth is largely

unknown. Better understanding of CINI youth testing and risk behaviors is an important first step in developing effective strategies for increasing testing rates and will inform recent risk reduction intervention efforts for these youth (e.g., 8). Additionally, examining testing and risk behaviors among CINI youth at the first point of contact with the court will provide data that may support integrating HIV and STI testing into court settings. Otherwise, these youth will not have the health care access provided in juvenile detention settings (see, e.g., 13). Therefore, the present study aims to provide data on rates of HIV testing and predictors of testing among a larger sample of CINI youth, in first time contact with the justice system, who are engaging in HIV risk behaviors. This study explores the association between history of HIV testing and factors commonly associated with HIV risk or testing, such as condom use and substance use, among these youth. Additionally, this study explores whether relevant psychosocial and family factors are associated with HIV testing.

METHOD

Data are from a longitudinal study (Project EPICC [Epidemiological Project Involving Children in the Court]) (14); however, for this analysis we focus on baseline data only to get a snapshot of HIV testing rates when youth are first in contact with the courts. Youth were recruited from a family court in the Northeastern United States. Of approximately 4,800 youth seen within the court during the enrollment period, an estimated 50% were eligible and, of those, 423 youth enrolled in the parent study including 400 youth-parent dyads followed over time and 23 youth-parent dyads who were administered only baseline measures. The present analyses included only youth who had engaged in at least one behavior over their lifetime that put them at greater risk for HIV acquisition: sexual intercourse (oral, anal, or vaginal), injecting drugs, shared needles for tattoos or piercings, or shared objects for cutting, which resulted in a final sample of 173.

For the present analyses participants were 173 youth (46.8% female) ages 12-18 (M = 15.31) with a first-time court petition for either a status (e.g., curfew violation, truancy) or delinquency violation; participants were only eligible if a caregiver with whom they live (for the six months prior to recruitment) was also willing to participate because the parent study assessed family functioning. Potential participants were notified of the study via a flyer with court scheduling materials and then were approached by research assistants within the courthouse and invited to participate. Data were collected in private via tablet-based, audio assisted computer assessment.

Measures

Demographics.—Youth reported their age, gender, sexual orientation, race and ethnicity.

HIV risk variables.—Youth completed the *Adolescent Risk Behavior Assessment* (ARBA; 15), which included a number of questions associated with HIV risk, including lifetime and recent (past 4 months) sexual history (i.e., proportion of sexual encounters involving condom use, lifetime number of sexual partners, lifetime history of STI). Lifetime and recent (past 4 months) substance use (i.e., marijuana, cocaine, heroin, meth, synthetic drugs, club drugs, inhalants, tranquilizers/benzodiazepines, prescription drug misuse, and other drug misuse) quantity and frequency were collected. Youth also self-reported history of

cutting behavior, needle sharing for piercings, and tattooing and history of medical, mental health, and substance use treatment. Lifetime history of STI, lifetime and recent substance use, and history of cutting behavior, needle sharing, and tattooing and history of medical, mental health, and substance use treatment were all dichotomized (coded as *present* or *absent*)

Testing.—Youth self-reported whether they had ever been tested for HIV.

Psychosocial maturity.—Youth psychosocial maturity was measured using the Psychosocial Maturity Inventory (PSMI; 16) Personal Responsibility scale, which contains 30 items measuring self-reliance, identity, and work orientation. Youth indicated how much they agreed with each statement on a scale from 1 (agree strongly) to 4 (disagree strongly). Scores range from 30-120, with higher scores indicating greater psychosocial maturity. The PSMI has good internal consistency and excellent concurrent and divergent validity; Cronbach's alpha for the full sample of the parent study was .95.

Sexual knowledge, communication, and norms.—Youth knowledge of general HIV information and information about transmission was measured using a 23-item, true/false HIV Knowledge Scale (HIVK; 17). The number of correct items was summed; higher scores indicate greater HIV knowledge. Cronbach's alpha standardized was .81 for the full sample of the parent study. Youth self-efficacy for condom use was measured using a 13-item self-report scale (SEC; 18) that asked youth how confident they were that they would be able to use a condom in a variety of situations (1 = very sure I could; 4 = very sure I could not). Scores range from 13-52 and higher scores indicate greater self-efficacy. Cronbach's alpha for the full sample of the parent study was .96. Parent-youth sexual communication was reported by parents using the 12-item Parent-Adolescent Sexual Communication Scale (PSC; 11). This scale includes three indices: helpfulness of communication (e.g., "How helpful do you think your discussions about condoms were?" [1 = not at all helpful; 7 = very helpful]; scores range from 6 to 42), number of sex topics discussed (scores range from 0 to 7), and quality of communication (e.g., "My teen and I talk openly and freely about topics regarding sex" [1 = not true; 7 = very true]; scores range from 6 to 42). Higher scores indicate greater communication. Cronbach's alpha standardized for the full sample of the parent study was .95 for helpfulness of communication, .79 for number of sex topics discussed, and .84 for quality of communication. Parent norms on sexual activity and supervision (PNORMS; 9) was measured via parent report. Parents indicated how true each of seven items (e.g., "I think it's ok for my child to have sex after one or two dates") was for them (1 = very true; 5 = very false). Scores range from 7 to 35 and higher scores indicate more supervision and disapproval of sexual activity. Cronbach's alpha for the full sample of the parent study was .72.

Method of Analysis

Independent samples *t*-tests and chi-square tests of independence were used to assess differences between tested and non-tested youth. Significant variables were then entered into a logistic regression analysis to identify variables associated with lifetime HIV testing. Significance for all analyses was set to .05. Given the exploratory nature of the study and

with the plan to evaluate significant associations in a logistic regression, no adjustments were made for multiple testing in the initial bivariable comparisons. For *t*-tests, a sensitivity power analysis was conducted using G*Power 3.1 (19) to determine the required effect size to detect a significant effect; with power set to .80, given sample sizes of 146 youth who had never been tested for HIV and 27 who reported having previously been tested, an effect size of $d = .52$ (a medium-sized effect) would be detectable.

RESULTS

Of 173 youth, 27 (15.6%) reported ever having been tested for HIV. The large majority of the sample (166 youth, 96.0%) reported ever having sexual intercourse, 3 (1.7%) reported using shared needles for piercing, 6 (3.5%) reported using shared objects for cutting, and no participants reported intravenous drug use or shared needles for tattooing. Age (older), gender (female), sexual orientation (non-heterosexual), past four month use of marijuana, lifetime use of other drugs, history of STI, pap smear in the past year, and history of mental health/substance use treatment were all significantly associated with lifetime HIV testing; see Table I. When those significant variables (excluding pap smear history because it would have overly-restricted the sample) were entered simultaneously as independent variables in a logistic regression analysis, the full model significantly predicted HIV testing, χ^2 (3, N = 144) = 30.36, $p < .001$, explained between 18.0% (Cox and Snell R^2) and 29.7% (Nagelkerke R^2) of the variance in testing history, and correctly classified 85% of cases. When holding constant the other variables in the model, only mental health/substance use treatment history was significantly associated with having ever received HIV testing (p = .023, OR = 11.33, 95% CI OR [1.40, 91.89]) and a history of STI diagnosis neared significance (p = .058, OR = 3.96, 95% CI OR [.96, 16.40].

DISCUSSION

The rate of HIV testing (15.6%) in this sample of CINI youth, who reported HIV risk behaviors, was lower than the 22% expected based on past research with substance-using CINI youth (2) and with at-risk urban youth (7). The low testing rate is especially alarming in light of the large proportion of CINI youth in the parent study (40%, 173 of 423) reporting behaviors that could expose them to HIV (i.e., unprotected sex, multiple sex partners, and substance use). Notably, these sexual risk behaviors were unrelated to HIV testing, indicating that additional efforts are needed to direct at-risk youth in the justice system to testing services. The extremely low testing rates in this sample emphasize that the juvenile justice system outside of detention is not adequately addressing youths' needs related to HIV testing or ensuring access to testing services for the youth at highest risk of HIV.

A history of receiving mental health or substance use treatment was most robustly related to HIV testing in this sample. Mental health services may serve as an important route for connecting CINI youth to health care more generally, including HIV testing. Additionally, given the high rates of mental health symptoms among justice-involved youth generally, addressing mental health needs may increase youths' willingness and ability to seek out other healthcare services. Overall, improving access to healthcare—both for sexual health and for mental health—may be an important part of increasing testing among justice-

involved youth, given the association between HIV testing and not only mental health/substance use treatment but also STI history and pap smears.

That psychosocial and family variables were unrelated to HIV testing in this sample was unexpected, in light of extant research highlighting the importance of parents in buffering against HIV risk for adolescents (e.g., 10), though may also be a result of insufficient power. For CINI youth, parent communication and monitoring, youth psychosocial maturity, and youth HIV knowledge may not be sufficient to overcome barriers to testing. Therefore, juvenile justice and public health systems may have an important role in helping direct at-risk youth to testing and in ensuring access for youth who may have challenges getting needed care. For example, public health practitioners and juvenile courts could partner to increase each system's awareness of these youths' needs and explore possible collaborations. This could include a community health liaison embedded in the juvenile court who can identify needed services—including HIV testing, refer youth to community providers, and follow up. Some existing research suggests a model such as this—with collaborations across public health and juvenile justice systems to provide STI counseling, voluntary testing, and treatment of youth who test positive—could be feasible and effective (13). That personal and family factors are unrelated to HIV testing suggests that structural factors, including poverty and lack of access to healthcare, may be highly relevant for CINI youth, since involvement in medical care (mental health or gynecologic) is associated with testing. HIV testing outside of traditional medical settings is being advocated to reach at-risk individuals who do not traditionally seek medical care. Juvenile courts could consider offering HIV screening and testing by partnering with relevant local medical or community-based organizations. Provision of home testing kits could be another feasible option.

Results should be interpreted in the context of study limitations. The sample was recruited from a single family court, and so results may not generalize to youth in other areas of the country or other court systems. A history of testing was assessed by self-report, which is subject to recall and desirability biases. Additionally, data were collected at a single timepoint and not all factors potentially influencing HIV testing were assessed. Finally, because these were secondary analyses, the study was underpowered to detect small effects; the findings of non-significance for psychosocial and family variables may be a reflection of lack of power and should therefore be interpreted with caution. Although extant research (e.g., 10, 11) has often not reported measures of effect size for these variables, it is likely the actual effect size would be smaller than the medium effect needed to detect significance.

Future research should examine predictors of HIV testing longitudinally, exploring what variables explain changes in testing behavior over time. This study provides important data on a large and often-overlooked population: justice-involved youth who have not experienced incarceration. Understanding testing rates and correlates for these youth provides an important foundation for beginning to develop approaches to increases testing—and reducing risk—for CINI adolescents.

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Table I.

Differences between youth with and without lifetime history of HIV testing.

	Not tested (n = 146) *M (SD)* or *n* (%)	Tested (n = 27) *M (SD)* or *n* (%)	*t* or χ^2	df	*P*	Effect size
Demographics						
Age	15.24 (1.31)	15.78 (1.01)	$t = -2.03$	169	.044*	$d = -.43$
Gender (% female)	62 (43.1%)	19 (70.4%)	$\chi^2 = 6.80$	1 ($N = 171$)	.009**	$\varphi = .20$
Race (% non-White)	79 (55.2%)	15 (55.6%)	$\chi^2 = .001$	1 ($N = 170$)	.976	$\varphi < .01$
Ethnicity (% Latina/o)	52 (36.4%)	11 (40.7%)	$\chi^2 = .187$	1 ($N = 170$)	.666	$\varphi = .03$
Sexual orientation (% heterosexual)	114 (79.7%)	15 (55.6%)	$\chi^2 = 7.25$	1 ($N = 170$)	.007**	$\varphi = .21$
Offense severity (% status offense)	56 (38.9%)	13 (40.04%)	$\chi^2 = .81$	1 ($N = 171$)	.368	$\varphi = .07$
Substance use						
Alcohol use, lifetime (% used)	78 (54.5%)	17 (63.0%)	$\chi^2 = .65$	1 ($N = 170$)	.419	$\varphi = .06$
Marijuana use, past 4 mo. (% used)	96 (66.7%)	24 (88.9%)	$\chi^2 = 5.37$	1 ($N = 171$)	.021*	$\varphi = .18$
Other drug use, lifetime (% used)	32 (23.0%)	13 (48.1%)	$\chi^2 = 7.22$	1 ($N = 166$)	.007**	$\varphi = .21$
Sexual behavior						
STI, lifetime (% diagnosed)	6 (4.3%)	6 (22.2%)	$\chi^2 = 10.70$	1 ($N = 165$)	.001**	$\varphi = .26$
Condom during last sex (% used)	86 (64.7%)	17 (63.0%)	$\chi^2 = .03$	1 ($N = 160$)	.867	$\varphi = .01$
Condom use, past 4 mo. (% always/almost always)	62 (61.4%)	8 (44.4%)	$\chi^2 = 1.81$	1 ($N = 119$)	.178	$\varphi = .12$
Number sexual partners, lifetime	3.70 (4.65)	4.16 (3.97)	$t = -.52$	37.88	.609	$d = -.11$
Number sexual partners, past 4 mo.	3.05 (5.05)	2.00 (1.97)	$t = .87$	115	.387	$d = -.22$
Pap smear, past year (% received)	7 (11.9%)	6 (33.3%)	$\chi^2 = 4.53$	1 ($N = 77$)	.033*	$\varphi = .24$
Other						
Mental health or substance tx history, lifetime (% treated)	85 (63.0%)	26 (96.3%)	$\chi^2 = 11.59$	1 ($N = 162$)	.001**	$\varphi = .27$
PSMI	2.89 (.56)	2.94 (.46)	$t = -.42$	163	.676	$d = -.09$
PNORMS	26.01 (6.07)	24.81 (6.34)	$t = .92$	164	.360	$d = -.20$
PSC-Communication helpful	31.85 (7.98)	29.79 (7.30)	$t = 1.04$	110	.301	$d = .26$
PSC-Number of sex topics	4.76 (1.67)	4.81 (1.24)	$t = -.17$	166	.869	$d = -.03$
PSC-Communication quality	33.91 (5.76)	33.96 (4.93)	$t = -.04$	165	.967	$d < -.01$
HIVK	11.03 (4.07)	12.52 (3.42)	$t = -1.65$	145	.101	$d = -.25$
SEC	47.57 (7.67)	47.58 (7.36)	$t = -.01$	153	.995	$d < .01$

* $p < .05$

** $p < .01$