The Feasibility of Implementing the HIV Seek, Test, and Treat Strategy in Jails

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Abstract

To successfully implement the Seek, Test, and Treat (STT) strategy to curb the HIV epidemic, the criminal justice system must be a key partner. Increasing HIV testing and treatment among incarcerated persons has the potential to decrease HIV transmission in the broader community, but whether it is feasible to consider the implementation of the STT within jail facilities is not known. We conducted a retrospective review of Rhode Island Department of Corrections (RIDOC) medical records to assess whether persons newly diagnosed in the jail were able to start ART and be linked to community HIV care after release. From 2001 to 2007, 64 RIDOC detainees were newly diagnosed with HIV. During their index incarcerations, 64% were informed of positive confirmatory HIV test results, 50% completed baseline evaluations, and 9% began ART. Linkage to community care was confirmed for 58% of subjects. Subjects incarcerated for >14 days were significantly more likely to receive HIV test results and complete baseline evaluation ($p < 0.001$). A similar association was not observed for ART initiation until incarceration length reached 60 days ($p < 0.001$). There was no association between incarceration length and linkage to care. This comprehensive analysis demonstrates that length of incarceration impacts HIV test result delivery, baseline evaluation, and ART initiation in the RIDOC. Jails are an important venue to “Seek” and “Test”; however, completing the “Treat” part of the STT strategy is hindered by the transient nature of this criminal justice population and may require new strategies to improve linkage to care.

Introduction

THE SEEK, TEST, AND TREAT (STT) STRATEGY aims to curb the HIV epidemic through the expansion of HIV testing and provision of antiretroviral treatment (ART) to persons identified as HIV-infected, which subsequently reduces their viral load and infectiousness.¹ To successfully implement this strategy on a national level in the U.S., the criminal justice system must be recognized as a key implementation partner in order to access persons marginalized from the healthcare system.² An estimated 1 in 7 of all HIV-infected individuals pass through jails and prisons each year,³ and this population has an increased burden of substance use disorders, complex psychosocial problems, and high-risk behaviors.⁴ However, there are barriers to conducting HIV testing and delivering antiretroviral treatment (ART) to incarcerated populations, which may include stigma, logistical challenges created by high turnover rates, bureaucratic barriers, and cost constraints.⁵ Despite the challenges, increasing

HIV testing and treatment among criminal justice-involved persons has the potential to decrease HIV transmission in the communities to which these persons return.

Implementing STT in criminal justice populations involves engaging jails, prisons, and community corrections. Due to longer sentences and a more stable population, it is logistically easier to provide HIV testing and care to the nation's prison population, which in 2009 was estimated at 1.6 million persons on a given day.⁶ However, jails provide access to a much larger population cycling through the criminal justice system, with nearly 12 million admissions annually.⁷ Jail incarcerations are typically short—a study of detainees with felony charges found a median incarceration length of 7 days.⁸ Prisons are under state or federal jurisdiction, while jails are typically under local (city, town) jurisdiction. However, there are several correctional institutions in the United States that operate integrated prison and jail systems, including the correctional system in Rhode Island.

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Despite the high turnover of jailed populations, routine HIV testing in jails has been shown to be feasible and essential in identifying persons who may not otherwise be tested.⁹ While HIV testing in jails is possible, we do not know whether persons newly diagnosed with HIV infection in jails go on to complete the initial evaluation for HIV and start ART. The short length of stay likely impacts the ability to deliver HIV test results, complete a baseline evaluation [CD4 count, HIV plasma viral load (PVL), and HIV genotype], initiate ART, and provide linkage to community HIV care after release.^{9–11}

In order to determine whether it is feasible to consider the implementation of STT within jails, we conducted a study that examined whether persons newly diagnosed with HIV infection in the Rhode Island Department of Corrections (RIDOC) jail were able to start ART and be linked to community HIV care after release.

Methods

A retrospective review was conducted of RIDOC medical records of all persons who tested positive for HIV within the RIDOC intake facility (jail) from 2001 to 2007. The RIDOC jail incarcerates persons awaiting trial, persons with short sentences (<1 year), those in protective custody, and persons transferred from other correctional facilities who are awaiting assignment to a prison facility. During the study period, the RIDOC conducted routine opt-out HIV testing upon admission to jail and a previous analysis of the RIDOC HIV testing program from 2000 to 2007 revealed that 73% of persons entering the RIDOC completed HIV testing.¹² A RIDOC health education nurse delivered positive results. HIV care was provided on-site by HIV physicians from the Miriam Hospital Immunology Center in Providence, RI, the largest Ryan White-supported HIV clinic in the state, which serves as the primary referral site for patients after release.

Persons were classified as a new diagnosis if s/he met the following criteria: (1) report in the medical record that the positive test was the first time the subject was made aware of their HIV-positive status; (2) no indications in the subject's medical record suggesting a previous diagnosis of HIV in the community; (3) no record of a positive HIV test from previous incarcerations; and (4) no information from the matched community medical record that indicated an HIV diagnosis prior to the index incarceration. The medical records of persons newly diagnosed were reviewed through 2009 to collect: demographics, HIV test date, receipt of test results, HIV risk factor, baseline evaluation (CD4 count and HIV PVL), HIV genotype, initiation of ART, co-morbidities, length of index incarceration, and re-incarceration at the RIDOC.

To determine linkage to the Miriam Hospital Immunology Center after release, unique study numbers were created to de-identify all study subjects. Each subject was then assigned an encrypted unique client identifier (eUCI), 40 characters in length, which is created using a SHA-1 hashing algorithm.¹³ This method of creating unique identifiers specific to individuals is used by the HIV AIDS Bureau of the Health Resources and Services Administration for Ryan White grantee reporting. We utilized this method in order to confidentially match subjects' medical records from the RIDOC to community medical records at the Immunology Center.

Descriptive statistics were used to summarize demographic characteristics, incarceration length, and baseline HIV data. Pearson Chi-squared tests were performed in order to analyze the delivery of HIV test results, completion of baseline evaluation, initiation of ART, and linkage to community care with respect to length of index incarceration.

This study was reviewed and approved by the Miriam Hospital IRB, the Medical Research Advisory Group of the RIDOC, and the Office for Human Research Protections.

Results

From 2001 to 2007, there were 64 individuals newly diagnosed with HIV for whom medical records could be reviewed. Medical records could not be located for 13 potential participants, and 22 subjects who tested HIV positive could not be confirmed as newly diagnosed, largely due to brief incarcerations without medical visits, and therefore were excluded from this analysis. Among the 64 participants reviewed, 89% were male ($n=57$), 44% Black ($n=28$), 30% Hispanic ($n=19$), and 23% Caucasian ($n=15$). Heterosexual sex was reported as the primary risk factor for almost half of newly diagnosed subjects, and injection drug use (IDU) or MSM/IDU as the primary risk factor reported for 19%; an additional quarter had no risk reported. The median number of new diagnoses per year was 10 (range 4–13).

During the index incarceration, 92% ($n=59$) completed HIV testing within 72 h of jail entrance, and the remaining five persons completed HIV testing between 20–60 days of jail entrance. Sixty-four percent ($n=41$) of newly diagnosed detainees were informed of their positive confirmatory HIV test results prior to release (Table 1). Fifty percent ($n=32$) completed a baseline evaluation during the index incarceration and the median CD4 count at baseline was 479 (range 118–1224) cells/mL. Only one subject had genotyping performed, and 9% ($n=6$) of all newly diagnosed subjects began ART during the index incarceration. Linkage to community care at the Miriam Hospital was confirmed for 58% ($n=37$) of subjects. Prior to any re-incarceration events and following the index incarceration, 12.5% linked to care within 90 days, and an additional 20% linked after 90 days. Another 25% linked to care following a subsequent incarceration.

Subjects were incarcerated for a median of 22 days, (range 0–2150), 80% of subjects were incarcerated for 90 days or less, and 23% were transferred to a prison facility prior to release. Two-thirds of subjects were re-incarcerated during the study period. Re-incarceration occurred following a median of 195 days from release from index incarceration, with a median of 2 re-incarcerations during the study period.

There was a strong association between the length of an individual's index incarceration and completing the baseline evaluation and starting ART (Table 2). Subjects incarcerated for more than 14 days were significantly more likely to receive HIV test results and complete a baseline evaluation including a CD4 count measurement ($p<0.001$). However, a similar association was not observed for ART initiation until incarceration length reached 60 days ($p<0.001$). There was no association between length of incarceration and linkage to care.

TABLE 1. COMPLETION OF TESTING, EVALUATION, TREATMENT INITIATION, AND REFERRAL DURING INDEX INCARCERATION AMONG JAIL DETAINEES NEWLY IDENTIFIED WITH HIV, RHODE ISLAND 2001–2007

	N=64 n (%)
<i>Index incarceration</i>	
Received positive test result during index incarceration	41 (64.1%)
Completed baseline CD4 count	32 (50.0%)
Median (min/max)	479.5 (118/1224)
≤ 200	4 (6.3%)
201–349	4 (6.3%)
350–500	9 (14.1%)
> 500	15 (23.4%)
Completed baseline PVL	32 (50.0%)
Median (min/max)	28,526.5 (48/395,661)
≤ 500	4 (6.3%)
501–10000	9 (14.1%)
10001–100000	14 (21.9%)
> 100000	5 (7.8%)
Completed genotype test	1 (1.6%)
Started ART	6 (9.4%)
Referred to HIV community care at Miriam Hospital	27 (42.2%)
Linked to HIV community care following index incarceration (prior to any subsequent incarceration)	21 (32.8%)
1–90 days	8 (12.5%)
> 90 days	13 (20.3%)
Linked to HIV community care at any point during the follow-up period	37 (57.8%)
<i>Re-incarceration</i>	
Number of subjects who were re-incarcerated after Index incarceration	42 (65.6%)
Median (min/max) times	2 (1/11)
1–5 times	34 (53.1%)
6–10 times	6 (9.4%)
> 10 times	2 (3.1%)

Discussion

This comprehensive analysis of persons newly diagnosed with HIV in the RIDOC integrated jail/prison system demonstrates that length of incarceration impacts HIV test result delivery, baseline evaluation, and ART initiation. Jails are an important venue to “Seek” and “Test” through routine opt-out HIV testing given access to persons at increased risk for HIV and those disproportionately affected by health disparities; however, completing the “Treat” part of the STT strategy may be hindered by the transient nature of this criminal justice population. Subjects were significantly more likely to receive HIV test results if incarcerated for greater than 14 days, but jail stays for many were brief—38% of newly diagnosed detainees in this study were incarcerated for 2 weeks or less. HIV testing was conducted with standard antibody testing, which likely delayed delivery of results and, subsequently, completion of the baseline assessment. Rapid HIV testing in jails may be used to expedite notification of results to both patient and provider and thus facilitate a more expedited evaluation for ART as well as expedite partner notification and risk reduction.^{9,14–16}

Evaluation and treatment algorithms that can be implemented following a new HIV diagnosis, or upon knowledge that someone with chronic HIV infection has been incarcerated, must be developed. The removal of structural barriers to the delivery of HIV care will enable more efficient evaluation and consideration for ART initiation prior to jail release. Jail incarceration may be an opportunity to start ART given it is a monitored setting with access to healthcare providers, yet linkages to community HIV providers must be established prior to release. These linkages are critical to maintaining continuance of ART after release given incarceration and subsequent release have been associated with virologic failure.^{18–20} Social work and case management support is also an important component to successful transitional care. We found that 58% of newly diagnosed persons linked to care at the Miriam Hospital at some point through 2009, but only 12.5% linked within 90 days of the index incarceration in a system that had co-located physicians and dedicated case management services for HIV-infected prisoners being released to the community.²¹ This linkage rate is

TABLE 2. COMPLETION OF TESTING, EVALUATION, TREATMENT INITIATION, AND REFERRAL BY LENGTH OF INDEX INCARCERATION AMONG JAIL DETAINEES NEWLY IDENTIFIED WITH HIV, RHODE ISLAND 2001–2007

	Total number of subjects (%)	Median length (days) of index incarceration (min/max)	Length (days) of index incarceration		p Value ^a
HIV notified			0–13 days	> 14 days	< 0.001
Yes	41 (64%)	42 (4/2150)	4	37	
No	23 (36%)	6 (0/120)	20	3	
Baseline evaluation			0–13 days	> 14 days	< 0.001
Yes	32 (50%)	76.5 (7/2150)	2	30	
No	32 (50%)	7 (0/81)	22	10	
ART started			0–60 days	> 60 days	< 0.001
Yes	6 (9%)	653.5 (90/2150)	0	6	
No	58 (91%)	18 (0/556)	44	14	
Linked to care			0–90 days	> 90 days	0.54
Yes	37 (58%)	23 (0/801)	31	6	
No	27 (42%)	19 (3/2150)	21	6	

^ap value: Chi-squared method.

likely higher than other jail facilities that have fewer dedicated HIV services, yet needs to be improved. The linkage rate did not appear to be related to length of index incarceration, highlighting the need for further research exploring factors that impact community linkage.

The low initiation of ART among persons in this study is consistent with results from the recent HRSA-funded initiative Enhancing Linkages to HIV Primary Care and Services in Jail Settings.²² Our review included almost a decade of HIV care, over which DHHS guidelines evolved significantly.^{23,24} The low rate of initiating ART and obtaining baseline genotyping may have been related to guidelines at the time of patient evaluation, but we did not observe a change in practice over time, suggesting that the findings were more likely a consequent of brief incarceration. Innovative solutions to developing expedited treatment algorithms coupled with linkage services upon release that incorporate registration for local AIDS drug assistance programs and medical entitlements are clearly needed to increase the number of persons accessing ART. The Affordable Care Act will bring significantly more health care coverage to persons with HIV, providing increased options for engaging persons in care.

There were limitations to this analysis. The study sample was created by reviewing medical records of persons who tested positive for HIV during the study period and who could be classified as being newly diagnosed. The study sample likely represented a proportion of the total number of persons who were newly diagnosed during the study period, given we only included persons for whom medical records could be located and reviewed. By reviewing community records only at the Immunology Center, we may have underestimated linkage to care by subjects who received care elsewhere, yet the Immunology Center provides HIV care for the majority of HIV-infected persons in RI and for those leaving the RIDOC. Finally, risk factor reporting in correctional facilities may be susceptible to bias.

Due to the high volume of persons passing through jails, these facilities must be considered as an essential component of a broader STT strategy. Correctional facilities have been identified as important venues for reaching persons at risk for HIV, particularly for racial and ethnic minorities who face disparate rates of incarceration compared to non-minorities.²⁵ However, our findings reinforce other studies that have revealed the challenges of delivering HIV treatment and high quality HIV care to persons who cycle in and out of the criminal justice system.²⁶ This study demonstrates that new HIV diagnoses can be identified through routine opt-out testing in jail and those persons who remain incarcerated for at least 2 weeks can be considered for initiation of ART. Further implementation research is needed to develop new strategies for reaching persons who are incarcerated for less than 2 weeks and to improve linkage to care after release from jail.

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Author Disclosure Statement

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