Jails, HIV Testing, and Linkage to Care Services: An Overview of the EnhanceLink Initiative

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Abstract Over 9 million persons in the United States (US) are admitted each year to jails. HIV prevalence among detainees is higher than the general population, which creates a public health need for linking HIV-infected detainees to services during jail and after release. The EnhanceLink initiative was funded as demonstration projects in 10 communities at 20 separate jails across the US. Grantees implemented and evaluated innovative models of HIV testing in jails and linkage of HIV-infected individuals to community services post release. In this paper, we describe services delivered with the EnhanceLink initiative. During 877,119 admission events, 210,267 inmates agreed to HIV testing and 822 new diagnoses of HIV were made. The majority of persons served with transitional services were previously diagnosed before the current incarceration. Cumulatively, 9,837 HIV+ persons were offered linkage and transitional services and 8,056 (82 %) accepted the offer. EnhanceLink demonstrated the feasibility of HIV testing in jail settings and provision of linkage services to enhance continuity of HIV care post-release.

Keywords HIV/AIDS · HIV testing · Incarceration · Inmate · Jail

Introduction

Each year, one in six individuals with HIV in the United States (US) spends time within a locked criminal justice system (CJS) facility. Behaviors that send a person into the CJS, including injection drug use and commercial sex work, for example, are the same activities that increase the risk for HIV acquisition [1]. Because of the concentration of people living with HIV infection in the CJS, these correctional facilities represent key settings for interventions to diagnose HIV disease and to link infected persons to community HIV care [2–7]. The US Health Resources and Services Administration’s (HRSA) HIV/AIDS Bureau’s Special Projects of National Significance (SPNS) funded the initiative, “Enhancing Linkages to HIV Primary Care and Services in Jail Settings” (EnhanceLink) to determine how jails might be leveraged to detect new HIV infections.
and engage newly and previously diagnosed HIV-infected persons in care [8, 9].

The vast majority of persons entering the CJS spends time solely in jails, which are short-term facilities for persons awaiting trial or sentenced for brief periods of time [10]. Movement in and out of jails has been demonstrated to disrupt access to HIV care frequently [11]. Jail entrants have a 40% probability of returning to jail at least once during the same calendar year. Since most jail inmates return to the community rather than move on to the long-term setting of a prison, jails can help with continuity of care by having effective transitional programs for HIV-infected detainees [10, 12]. Springer et al. [12] highlighted five factors that are necessary to improve treatment outcomes for HIV+, released inmates that comprise a “transitional care” focus. These include: (1) case management services to facilitate linkage to care; (2) continuity of antiretroviral therapy (ART); (3) treatment of substance use disorders; (4) continuity of mental illness treatment; and (5) reduction of HIV-associated risk-taking behaviors [12]. “Transitional services” encompasses health care, substance abuse treatment, and mental health services, along with housing placement and employment training.

Recognizing that Ryan White HIV/AIDS programs will be responsible for post-release health care for many incarcerated persons living with HIV when they return to the community, HRSA has allocated resources to transitional social support and discharge planning since 2003 [13]. The HRSA SPNS program has allocated resources in the past to HIV demonstration projects for persons leaving prisons and other correctional facilities [14, 15]. EnhanceLink was designed to focus on exploring innovative models for jail-based HIV testing and providing transitional linkage services for persons leaving jails. The main objectives for HIV testing were to demonstrate the feasibility of HIV testing in jail settings, establish HIV testing as part of routine care and identify both the newly and previously diagnosed cases of HIV infection. Similarly, the objectives of the linkage program were to demonstrate that, despite the briefness of most jail stays, HIV-infected persons could be engaged in the jail setting, linked to community care, and retained in HIV care for at least 6 months post-discharge.

In 2007, the SPNS program awarded 10 grants to organizations to implement and evaluate models for linkages to healthcare for people living with HIV who were entering or leaving jails (see Fig. 1). A detailed description of each grantee’s program was summarized by Draine et al. [8]. In 2006, the SPNS program selected Emory University, in conjunction with Abt Associates Inc., to establish an Evaluation and Support Center to lead client-level and program-level evaluations of EnhanceLink. Additional details about the initiative and its evaluation are included in an Online Appendix. Program-level evaluation included data on the number of persons served by the individual projects. The purpose of this paper is to provide an overview of findings from the EnhanceLink initiative as a whole.

Methods

Data Collection and Measurement

The EnhanceLink multisite evaluation was guided by the “Framework for Program Evaluation in Public Health,” published by the Centers for Disease Control and Prevention [16]. Program data were collected by 10 EnhanceLink grantee organizations and their local jail and community-based partners. Data were reported on 3-month quarterly program summary forms that were developed based on similar forms for a prior HRSA SPNS Corrections Demonstration Project and adapted for the present set of grantees and jail settings [17, 18]. The heterogeneity of grantee programs and partnering jails was reflected by the varying sources and types of data submitted. The main data domains collected on the EnhanceLink form were: (1) jail admissions; (2) HIV testing activities sponsored by SPNS funding as well as any other programs; (3) participation in EnhanceLink-funded services for continuity of care; (4) and participation in the client-level longitudinal multisite evaluation. Figure 2 presents an illustration of how the initiative served clients.

For the quarterly reporting periods, January 1 was considered the beginning of the first quarter of each year; the last ended December 31. Programs had staggered start times for the intervention delivery and for the start of evaluation. The start of the interventions may have preceded the evaluations by a number of months and do not necessarily correspond. Two grantees began collecting and reporting quarterly program summary data in the third quarter of 2007 to pilot test the evaluation instruments before they were used system-wide. All were collecting program data by July 1, 2008. Data collection ended on March 31, 2011. Each grantee organization entered quarterly program summary data using a web-based data reporting system developed for this initiative.

Jail Entrants or Admission Events

The correctional facilities reported the number of persons or admission events in the partnering jails. Grantees varied in their ability to track the number of persons admitted to each partnering jail facility in each quarter. Eight grantees reported admission events, where an individual would be counted multiple times for multiple jail stays in a quarter,
and two grantees were able to report the number of unique individuals admitted in a quarter. However, none kept account of unique individuals admitted over the course of the project. Because data on activity were reported in aggregate, the quarterly program summary report may duplicate counts of individuals in several domains in addition to jail admissions, including the numbers of individuals engaged in various HIV testing activities and EnhanceLink linkage and transitional services.

**HIV Testing**

In describing HIV testing activities, we will describe both SPNS funded testing and all testing programs in partnering jails. Jails varied regarding whether testing was opt-in or opt-out and whether written consent was required. The grantees were told to count any report of an HIV test offer independently. For example, an offer could be made at intake by a jail nurse within the context of an educational presentation on the benefits of HIV testing and the availability of linkage services, or at medical encounters subsequent to jail entrance. Each occurrence of a test offered (or re-offered), accepted and completed was counted. For example, an individual could be tested in the same jail in quarters 1 and 3 of 2009, and quarters 2 and 4 of 2010; the number of tests performed for this individual would be counted as four.

**Linkage and Transitional Care Services**

HIV-infected persons were offered and enrolled in linkage services at each of the grantee sites. Some of the referrals came from the jail-based testing programs, where some individuals may have learned of their HIV status for the first time. Others had a previous HIV diagnosis confirmed by testing during the current jail stay. Still others had a previous HIV diagnosis, often occurring during a previous incarceration, and entered the initiative without HIV testing on the new jail entrance. The grantees reported the number of instances when they were aware of an HIV-infected person in their partnering jails. Because sites had varied, and in some cases, limited ability to deliver services

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**Fig. 1** Map of EnhanceLink grantees, illustrating number of clients served and participation rates in multisite evaluation (MSE). The diameter of the bubble refers to the number of clients who received linkage services. The darkness of the fill color of the bubble refers to the number of persons enrolled in the MSE (map courtesy of L. C. Messina. From Poster #1121, XIX Conference on Retroviruses and Opportunistic Infections, 2012) (Color figure online)
in jail settings, EnhanceLink funding could be used to enroll individuals in transitional case management services while in jail to facilitate linkage to primary care in the immediate post-discharge period.

**Individual Participation in the Multisite Evaluation**

Individuals enrolled in EnhanceLink services were invited to participate in the longitudinal multisite evaluation client-level data collection. Each site could set enrollment criteria regarding who they enrolled in the longitudinal evaluation (e.g., whether to include newly diagnosed) and so theoretically, those in the longitudinal analysis could have characteristics different than the total population served. The individual-level evaluation collected data on client characteristics, including involvement in the CJS and receipt of HIV care and ancillary services. It was designed to follow consenting, eligible clients for 6 months post-discharge from their index incarceration. Clients who declined to participate in the longitudinal evaluation were eligible to continue to receive EnhanceLink services. In practice, if a client asked to stop receiving EnhanceLink SPNS services post-release, some grantees stopped following the clients for the client-level, longitudinal portion of the multisite evaluation.

**Study Sample**

Data for the present analysis come from grantees and the jails and community partners that were willing and able to report aggregate process data affiliated with the EnhanceLink initiative on a quarterly basis.

**Data Quality Review**

To ensure high quality and consistency in data collection, among the unique set of EnhanceLink grantees, project leaders and evaluators from each site received training at semi-annual project meetings. Periodic conference calls and webinars were conducted to supplement training. A written guide was developed to provide item-by-item instructions on how to complete quarterly program summary forms and was periodically revised to address frequently asked questions. At the semi-annual project meetings, preliminary quarterly program summary data were reported and discussed with grantees to assess data discrepancies and unique issues encountered by each site and to plan for future analyses. Based on feedback from project partners, additional data cleaning and iterative analyses were subsequently conducted that included examination of frequency distributions of all relevant categorical variables and descriptive statistics on all continuous variables. Means and medians, range values and rates were subsequently generated using an automated reporting system on the project’s data reporting website.

**Results**

Our results are presented according to the main domains addressed in the collection of program-level data.

**Jail Admissions**

The quarterly program-level reports provided a picture of the eligible jail population served. Each EnhanceLink grantee worked with one to eleven jail facilities in their geographic vicinity. At the close of the project, 20 jail systems had been engaged across the 10 grantees. The jails varied in terms of setting (urban/suburban), number of jail units, average daily population, mean daily admissions, and median length of incarceration [8]. The ratio of detainees awaiting trial to sentenced individuals varied by site. In some sites with multiple jail partners, admission data were provided for the study from some, but not all, of their partnering jails. Details on geographic locations, grantees,
and jails can be found in Table 1. Most of the partnering jails reported admission events rather than unique numbers of individuals who entered the facilities.

Cumulatively, 877,119 admission events or quarterly entrants were reported by EnhanceLink sites (Table 1). This number includes duplicate counts of entrants within the same quarter for eight of the sites. Assuming that the average detainee enters jail 1.4 times a year (reflecting a yearly jail reincarceration rate of 40% [10]), total individuals admitted may be closer to 71.4% (=1/1.4) of the number of admission events: 655,934 individuals. Since some who were released in 1 year returned in a later year of the project period, the actual number of persons admitted would be lower. However, no jail provided data on the number of unique individuals incarcerated over the 3 year project period.

HIV Testing Supported by SPNS or Other Programs

Reporting jail partners varied widely in the proportion of detainees tested per admission event (range: from 1 to 49% admissions [mean 21%, median 20%] were associated with an HIV test) and acceptances per offer (range: 13–95%, mean 55%, median 42%). Most testing occurred at jail intake. A total of 210,267 HIV tests were conducted based on 499,131 offers (Table 2). Across the entire initiative, a total of 1,312 HIV test results were positive (0.62% of all tests). Grantees reported 822 persons (from 0.39% of all tests) were newly diagnosed with HIV for the first time. (Some sites confirmed newness of diagnosis with local health departments. Procedures varied by site.)

Six grantees in 17 jail settings took advantage of the SPNS funding that was available to underwrite some of the HIV testing between 2008 and 2011. Among these jails, over 62,352 jail detainees were offered SPNS supported HIV testing, of whom 19,557 detainees were actually tested (data on reasons for refusal of testing were not collected as part of this study). Of the 19,557 detainees tested, 128 were positive for HIV, and 46 of those were new diagnoses.

Participation in Linkage and Transitional Services

By March 2011, a cumulative 9,837 (range across sites: 104–8,141) persons were offered transitional services and 8,056 (range across sites: 64–6,783) accepted the service, resulting in an 82% participation rate. The majority of clients (N = 8,007, 99%) enrolling in transition and linkage services were enrolled while in jail. On average, 1,578 clients were enrolled and “on the books” (i.e., their case status was open) for a given quarter during the observation period. Subsequent articles in this supplement will provide data on eventual outcomes of those enrolled in linkage services.

All sites reported that they were able to link appropriate clients to treatment for HIV with HAART while in jail. Eight of the 10 sites were able to give clients medication upon discharge from jail, but not all were able to enumerate and report an exact number for this evaluation. Five sites were able to provide clients with medication prescriptions...
in addition to medications at the time of release from jail. All sites reported that part of their caseload received HIV treatment while in the community.

Client-Level Component of the Multisite Evaluation

By March 2011, when collection of the quarterly program summary forms ceased, 1,386 clients had consented to provide individual-level data. At that time, 395 (28 %) clients had concluded their participation in the multisite evaluation when they completed their 6 month follow-up interview. Another 442 (32 %) clients had dropped out of the evaluation process before completion of their 6 month follow-up interview. Client-level data collection continued after the quarterly program summary data collection ended, and these data give insight on the eventual outcome of the remaining 549 (40 %) clients (e.g., whether they were linked to and retained in care). Reasons why clients dropped out prematurely from the individual evaluation were collected in the individual-level evaluation. Figure 2 shows how participants in the client-level data portion of the multisite evaluation were a minority of all persons served project wide in EnhanceLink.

Discussion

Program-level data from EnhanceLink illustrate that jails are strategic settings for testing at-risk adults for HIV, re-engaging those previously diagnosed back into care, and connecting HIV+ persons with community services. Many persons who self-identified or were known to be HIV+ were not retested but were rather linked directly to care. Although sites varied by the stage of the HIV epidemic, the pre-existing level of HIV resources in the community, and the levels of prior involvement with correctional programs, all projects developed models of enhancing linkages to community care.

The 48-h median length of stay in a jail for a typical detainee [19] and 1 week median stay for a felony defendant [20] leads to both opportunities and challenges for providing HIV testing and ongoing services. A recent paper based on EnhanceLink data shows that HIV detection rates are high in jails; HIV diagnosed in jails is found at an earlier stage than that found in other venues [21]. While shorter stays and greater turnover in jails (as compared to prisons) offer an opportunity to reach a large number of people, these characteristics also present serious operational and logistical challenges to managing HIV in jails. For instance, as illustrated in Fig. 2, grantees collectively knew of 28,649 HIV+ occurrences in jails; however, they were only able to bring an offer for transitional services to 8,056 (28 %) individuals. Analysis of program data indicated that the EnhanceLink initiative addressed many challenges in HIV diagnosis and linkage to care in jail settings and identified a broad array of models for effective management; however, more work is needed [8]. HIV testing in jails is an integral component of service. Routine or “opt-out” HIV testing was a health intervention in many jail systems that created an environment conducive to the initiation of HIV medical care. Challenges included addressing privacy in the congregate jail setting, providing HIV test results and initiating treatment for appropriate patients, obtaining timely notification of release dates, and providing an appropriate level of care in a resource-limited setting. Individual-level data in papers that follow will be able to detail how clients fared in the EnhanceLink initiative.

Table 2 EnhanceLink cumulative HIV testing by all programs, Q3 2007–Q1 2011

<table>
<thead>
<tr>
<th></th>
<th>Q3 2007–2008 N*</th>
<th>2009 N</th>
<th>2010 N</th>
<th>Q1 2011 N</th>
<th>Total N</th>
<th>As percent of those entering</th>
<th>As percent of those tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number entering jails</td>
<td>206,214</td>
<td>290,218</td>
<td>305,685</td>
<td>75,002</td>
<td>877,119</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offered HIV test</td>
<td>161,035</td>
<td>158,842</td>
<td>148,678</td>
<td>30,576</td>
<td>499,131</td>
<td>56.9</td>
<td></td>
</tr>
<tr>
<td>Accepted HIV test</td>
<td>48,269</td>
<td>69,360</td>
<td>73,237</td>
<td>21,598</td>
<td>212,464</td>
<td>24.2</td>
<td></td>
</tr>
<tr>
<td>Tested</td>
<td>48,160</td>
<td>68,117</td>
<td>72,421</td>
<td>21,569</td>
<td>210,267</td>
<td>24.0</td>
<td></td>
</tr>
<tr>
<td>Number tested who received result</td>
<td>48,005</td>
<td>55,346</td>
<td>64,653</td>
<td>20,235</td>
<td>188,239</td>
<td>21.5</td>
<td>89.5</td>
</tr>
<tr>
<td>Tested HIV+</td>
<td>252</td>
<td>404</td>
<td>461</td>
<td>195</td>
<td>1,312</td>
<td>0.15</td>
<td>0.62</td>
</tr>
<tr>
<td>Number tested HIV+ who received result</td>
<td>243</td>
<td>356</td>
<td>387</td>
<td>194</td>
<td>1,180</td>
<td>0.13</td>
<td>0.56</td>
</tr>
<tr>
<td>Newly diagnosed HIV+</td>
<td>123</td>
<td>240</td>
<td>369</td>
<td>90</td>
<td>822</td>
<td>0.09</td>
<td>0.39</td>
</tr>
<tr>
<td>Self-identifying HIV+</td>
<td>4,544</td>
<td>4,868</td>
<td>4,991</td>
<td>1,141</td>
<td>15,544</td>
<td>1.77</td>
<td>7.39</td>
</tr>
</tbody>
</table>

* This is the initial quarterly program summary reporting period in which grantees had staggered start dates
Limitations

Our data findings are limited by several factors, including the heterogeneity of sites, reports of events as compared to persons, and other inherent limitations of a report on the evaluation of process-type data. A non-experimental study design, such as the one employed in this evaluation, was necessary due to the nature of demonstration projects. Multiple approaches and ongoing refinement of these approaches are needed to link HIV-infected individuals to care.

One of the original study aims was to assess the proportion of the eligible jail population reached by EnhanceLink. Answering this question was limited by the considerable difficulty with obtaining precise numbers of unique individuals entering jails over the observation period, rather than the numbers of admission events. Also, as mentioned previously, the EnhanceLink HIV data on testing are likely to have duplicate counts, as some detainees could have been offered or received HIV testing more than once, even in a single incarceration. In contrast, since a person can only be given a “new diagnosis” one time, we are more certain about the fact that testing led to 822 new HIV diagnoses. The generalizability of EnhanceLink findings to all US jails is limited by the lack of diversity in grantee sites. Although urban and suburban jails are represented, none were rural. Additionally, most are large jails, and all are east of the Mississippi River.

Implications

Several lessons learned in EnhanceLink are relevant for future programs and research studies that wish to engage the jail population while still detained and to continue with services and evaluation after release. First, the number of persons testing positive is much smaller in comparison to the number of HIV-infected persons who already know that they are positive, suggesting that linkages for newly diagnosed persons should be considered differently than persons who are previously diagnosed, regardless of prior engagement in care. The EnhanceLink initiative has documented the challenges faced by individuals cycling in and out of the CJS who may require multiple attempts at linkages—and perhaps relinkages—to maintain continuity of HIV care while in jail and in the community. Second, the initiative demonstrated that continuity of care programs and their evaluations are feasible in a wide range of correctional facilities and community settings. EnhanceLink provides multiple models of how programmatic coordination can succeed in a jail setting with rapid detainee turnover. Building relationships with jails and community-based health services are essential to ensure continuity of care for jail detainees. These partnerships allow for health screenings and enrollment of participants in programs while in jail settings despite challenges to privacy and high throughput of individuals.

Although correctional facilities are prime areas for helping to control HIV, there are still challenges in implementing interventions that will reach a substantial number of persons rapidly entering and leaving jails. Furthermore, the jail population often has needs beyond just HIV care, such as treatment for mental illness and substance use disorders, which may be more challenging to address in the quickly moving environment of short-term detention facilities (compared to during the relatively sedate pace of prison life). Ryan White HIV/AIDS programs and organizations that address the unique reentry issues and needs of detainees and releasees may find the results of the EnhanceLink study beneficial when planning services specifically for an HIV+ jail releasee. The papers that follow in this supplement will address a wide range of issues confronting these jail releasees.

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