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ORIGINAL PAPER

Jail-Based Case Management Improves Retention in HIV Care 12 Months Post Release

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Abstract

Continuous and coordinated HIV care is essential for persons living with HIV to benefit from the advances in medical treatment of the disease. Approximately one in seven individuals living with HIV pass through correctional facilities annually. While sentenced individuals may receive discharge planning services, detainees in local jails usually do not. The multisite evaluation of the EnhanceLink initiative demonstrated that jail based services including discharge planning were associated with high rates of linkage to community HIV care upon release. Follow up for the multisite evaluation was limited to 6 months. This paper extends follow up to 12 months at one site and demonstrates that clients who were linked by the jail based case manager to a Ryan White community based case manager were more than nine times more likely to be retained in care at 12 month post release. (OR 9.39, CI 1.11–79.12).

Keywords HIV · Jails · Corrections · Retention in care · Case management

Introduction

Numerous studies have demonstrated that long term adherence to antiretroviral medication improves the health of patients living with HIV. Additionally, treatment for individuals living with HIV (PLWH) decreases transmission to an HIV negative partner [1]. Unfortunately, large scale evaluations of rates of the HIV care continuum have demonstrated that only a small portion of PLWH are actively engaged, retained and adherent to medical care [2, 3]. It is clear that for someone living with HIV, their health, as well as the health of their partners, hinges on improving their engagement in the HIV care continuum. Globally, the UNAIDS has set the ambitious goal of 90:90:90 by 2020; 90% of HIV cases diagnosed, 90% diagnosed will be prescribed antiretroviral medication and 90% of people prescribed HIV medication will achieve viral suppression [4]. While significant progress has been observed with testing and linkage initiatives for hard to reach populations, less progress has been noted in retaining patients and achieving sustained viral suppression. Most resource rich areas currently fall short of the 90:90:90 goals. Evidence based guidelines to improve retention in care have been outlined however they do not address the transition from jail to community [5]. Additional strategies to engage and retain PLWH are desperately needed [6–8].

Background

Nearly one in seven individuals living with HIV pass through a correctional facility every year [9]. We previously noted as part of the *EnhanceLink* multisite demonstration project that the majority of the individuals with HIV in the jail had been previously diagnosed, reported having a care provider but were unlikely to have been adherent to medications immediately prior to incarceration [10]. Even a brief jail stay offers an opportunity for medical and support staff to re-connect with PLWHA who are out of care. Staff can reinforce the benefit and ensure the availability of medical care both in jail and upon release. Similarly, jails offer opportunities to

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address co-morbid issues including mental health symptoms and substance use. Because jail stays are usually short and release from jail often occurs without notice, continuity in a variety of needs including health care, insurance, housing and social support may be disrupted, leaving individuals in a greater state of chaos than when they entered jail.

EnhanceLink was a federally funded 10-site demonstration project that implemented and evaluated diverse models of linkage to outpatient HIV care from jail settings [11]. The initiative was part of the Special Projects of National Significance (SPNS) branch funded by the Health Resources Services Administration HIV/AIDS Bureau (HRSA HAB) Part F. The multisite evaluation demonstrated high rates of linkage following release though evaluation by the multisite group was limited to the 6 months following release from the index incarceration [12]. In-jail activities, such as HIV education and developing a discharge plan with the patient, were associated with high rates (79%) of linkage to HIV medical care at 30 days post-release [13]. The *EnhanceLink* interventions compared favorably to another study where there was no jail-based intervention and their 90 day linkage was only 34% [14].As part of the local evaluation at our site, follow up was extended to 1 year post-release.

HIV/AIDS impacts an individual in many domains such as psychosocial, sexual, legal, ethical, and economic. PLWHA often experience homelessness, substance use, mental illness, poverty and lack of insurance, especially when life is interrupted by incarceration [15]. Case management focuses on assessment, planning, monitoring and linkage [16]. It can also play an integral role in the HIV/AIDS continuum of care through facilitation of access to health care, benefits as well as addressing other issues such as homelessness [17]. Studies have shown that case management has been effective in reducing these unmet needs [18, 19].

The Ryan White HIV/AIDS Program provides funding for medical and non-medical case management for PLWH in many jurisdictions and its use has been associated with improved health outcomes for vulnerable populations [20, 21]. In clients with multiple and complicated needs, more than one case manager or organization may be needed thus making collaboration and communication essential [22]. The HRSA HAB defines medical case management as "as a range of client-centered services that link clients with health care, psychosocial, and other services." HRSA HAB distinguishes these services and states that the "objective of non-medical case management to provide guidance and assistance in improving access to needed services whereas Medical Case Management services have as their objective improving health care outcomes" [23]. Locally, medical case managers are in place both at healthcare facilities as well as community organizations. Individuals may work with a community-based medical case manager, a non-medical case manager (such as for housing) yet still have unmet needs when getting medical care and thus interface with the clinic based medical case managers. As a result, a case management network system was set up as an interdisciplinary network to facilitate the client remaining in care and accessing needed resources. All medical and non-medical case managers in this network meet monthly to share best practices, discuss policy updates, and advocacy needs. Regular contact maintains positive relationships between organizations and fosters a collaborative environment that keeps the continuum of care open for the clients.

Local Intervention

As part of HRSA funded SPNS project on enhancing linkages from jail to primary HIV care, the ATLAS (Assess, Test, Link, Achieve Success) program was created. The program offered jail-based HIV testing, health education and case management. When an inmate self-identified as HIV+ or was tested positive upon intake to the jail, a referral was made to the ATLAS program. Jail-based case managers (JBCM) met with detainees as soon as possible after incarceration and offered participation in the ATLAS linkage program. Interested participants provided informed consent and release of medical information to staff. JBCMs used a strengths-based case management model to assess needs and develop a discharge plan [24, 25].

JBCMs coordinated access to services while in jail and connected participants to relevant community resources including substance use programs, mental health treatment programs and to their Ryan White Case Manager. The JBCM attempted to meet with participants weekly while incarcerated and assessed mental health, substance use, housing, insurance and medication needs as well as provided a supportive presence for the inmate while incarcerated. Disease education, medication adherence and risk reduction counseling was provided while in jail if needed. Intervention related services were provided only while in jail and ceased upon transfer to prison or if sentenced longer than 6 months. Upon release from jail, the JBCM would coordinate medical and social service appointments for the inmate and provide detailed information on how to follow up with services in the community. The JBCM maintained communication with all community-based case managers, including the participant's Ryan White Case Manager, to create continuity of care between the jail and the community. This allowed for case plans that had been started in the community to be maintained while in the jail and vice versa upon release. Post release follow up interviews were for evaluation purposes only though participants were provided with passive referral information if requested.

We sought to evaluate the effectiveness of jail-based case management services on linkage and retention to community-based HIV care.

Methods

A baseline assessment of patient characteristics, including demographics, recent mental health symptoms, substance use, housing status and food security was completed using a standardized interview tool and has been detailed elsewhere [26]. Each visit with an inmate or activity on behalf of the inmate was tracked and coded for content. Medical charts from participant's community provider were reviewed for CD4 count or HIV viral load (HIV labs) in the 6 months prior to incarceration and 12 months following release. Community-based follow up interviews were completed at 1, 2, 3, 6, 9, and 12 months. Follow up interviews consisted of a structured standardized assessment of current needs and service utilization. All study procedures were approved by the MetroHealth IRB protocol #08-00124 and #09-01301. A certificate of confidentiality was received for additional protection of subjects.

The presence of a T cell count or HIV viral load was used as a proxy for receiving medical care. Participants were classified as "in care prior" if they had HIV labs completed during the 6 months prior to incarceration. Participants were classified as "linked" if they had HIV labs completed in the first 6 months following release and were classified as "retained" if they had HIV labs in both the first and second 6 months of the 12 month post-release time frame.

For both linked and retained, we assessed potential associations with baseline characteristics and activities performed in jail by the JBCM. For categorical variables, linear regression was used to test for significance and provide odds ratios. Tables 2 and 3 show variables assessed and their odds ratios with confidence intervals. All statistical analyses were performed using Stata (Foundation for Statistical Computing; StataCorp, College Station, TX, USA) version 11.0.

Results

A total of 132 adult HIV+ detainees agreed to participate in the project. Of those, 58 were disenrolled prior to release from initial incarceration. (55 sentenced to prison, 1 died, 1 chose to stop participating and 1 had disruptive behavior with study staff). Seventy four were released to community following initial incarceration. Of those 74, there were 39 re-incarcerations among 33 participants. Of the 74 released, 8 additional participants were disenrolled during the follow up period due to prolonged re-incarceration which prohibited community follow up and evaluation. Sixty-six participants remained free at 12 months and are included in this evaluation.

Fifty-four (83.1%) participants were linked to care with at least one visit in the first six months following release. Of those linked, 19 participants (35.2%) were retained in primary HIV care at 12 months with visits occurring in both the first and second six month time frame following release. No differences in race, gender or ethnicity were observed with linkage or retention in care. Being homeless prior to incarceration was associated with not being linked to care. ($P=0.04$) though this had no association with being retained at 12 months ($P=0.42$). Baseline assessments of mental health symptoms and substance use (ASI) [27, 28] were not different between those linked and retained compared to those linked and lost to follow up (Table 1).

Specific services provided in jail are listed in Table 2 and 3. Neither the delivery of the service ever to an individual, nor the intensity of the service (how many times it occurred per individual) was associated with being linked to care (Table 2). However, coordinating care to one's Ryan White community-based case manager was significantly associated with being retained in care at 12 months at an OR 9.39 (CI 1.11–79.12) (Table 3).

Local follow up evaluation interviews in the community were also performed at 1, 2, 3, 6, 9 and 12 months post release with optional interviews at 4 and 5 months though follow up participation, particularly with end of the study period, was highly associated with being retained in care thus limiting their utility in determining barriers to long term retention in care. Overall, fifty of seventy-four participants released completed at least one follow up interview. However, of the 24 with no interviews, 11 were not linked or retained. More specifically, those retained in care at 1 year were significantly more likely to complete the 9 month ($p=0.001$) and 12 month ($p=0.025$) follow up interview than those not retained. Thirty three percent of participants released did not complete any follow up interviews. Of interviews completed, no additional needs or patient characteristics associated with linkage or retention in care were identified.

Discussion

Providing jail-based case management and coordinating referrals to community-based case managers effectively linked and retained some clients in HIV care at 1 year. The sole finding of linking to a Ryan White Case Manager is striking and reinforces the benefit of this service category and its benefit has been seen in other studies. It also suggests that jail-based services should be supported to achieve a state of continuous and coordinated care for PLWH. Despite high rates of substance use and mental health concerns in

Table 1 Baseline demographics and characteristics

	Linked and retained		Linked and not retained		P value
	n = 19	%	n = 35	%	
Gender					
Male	16	84	27	77	0.6
Female	1	5	5	14	
Transgender MTF	2	11	3	9	
Ethnicity					
Hispanic	2	11	2	6	0.52
Non-Hispanic	17	89	33	94	
Race					
African American	14	74	26	74	0.96
Non-African American	5	26	9	26	
Homeless status @ time of incarceration					
Homeless at baseline	6	32	15	43	0.42
No days homeless 30 days prior	13	68	20	57	
Access to food @ time of incarceration					
Reported no food for 2 or more days prior	7	37	18	51	0.31
Did not report going hungry	12	63	17	49	
Insurance @ time of incarceration[a]					
Insurance at baseline	12	63	22	63	0.58
No insurance	5	26	13	37	
ASI composite scores at baseline	Mean		Mean		P value
Drug	0.078		0.092		0.24
Alcohol	0.129		0.190		0.19
Psychiatric	0.356		0.430		0.17
Employment	0.839		0.873		0.28

[a]Information missing on two patients

the population, connecting clients to these services in jail or in the community did not affect overall linkage or retention rates. We suspect that the lack of effect may be related to persistent barriers (despite referrals) to accessing mental health and substance treatment programs as well as the poor outcomes associated with treating addictions. It is also important to note that the rate of referrals appears low in relation to the reported symptoms at baseline. A few factors are likely involved. Symptoms may have abated during the jail stay, the client may not have felt ready or willing for those services and some facilities require the client contact them directly. In contrast, the Ryan White Case Managers can tailor services to the client as well as facilitate follow through and entry into services such as housing, mental health and substance use treatment. Given the diversity of needs of the incarcerated population, we believe that linking back to one's Ryan White Case Manager facilitated effective linkage to other services as well as coordination of care.

In 2008, the Centers for Disease and Control and Prevention laid the groundwork of effective case management with the release of *Recommendations for Case Management Coordination in Federally Funded HIV/AIDS programs.* In this document, the CDC stressed the importance of effective communication between case managers and their clients, with other case managers, and on a grander level, communication and collaboration among organizations. The absence of effective communication and collaboration may lead to unnecessary gaps in care. Uncoordinated efforts often cause unnecessary difficulties and delays in clients receiving services. Ultimately, this can cause clients to become detached from their care provider while effective communication can result in higher self-reported quality of life, higher rates of adherence, and reduced medical cost due to the illness [22]. During the project, staff provided essential communication to community case managers regarding patient needs, location and notification of a release as well as provided continuity for completing applications, etc. Community case managers frequently expressed relief and gratitude to know the location of their clients, as many of these clients were high needs patients with complex social situations.

As noted in the CDC guidelines, communication with the client is an integral aspect of linkage to care. The

Table 2 Participants linked at 6 months post release

Services provided in jail by jail based case manager	Not linked		Linked		OR	(95% CI)
	n = 12	%	n = 54	%		
Individual counseling	1	11.1	8	88.9	1.91	(0.21–16.93)
Did not receive	11	19.3	46	80.7		
Disease education/med management	5	20	20	80	0.82	(0.23–2.94)
Did not receive	7	17.1	34	82.9		
Coordination of in jail HIV care	5	14.7	29	85.3	1.62	(0.46–5.76)
Did not receive	7	21.9	25	78.1		
Coordination of in-jail non-HIV medical care	4	14.8	23	85.2	1.84	(0.4–5.53)
Did not receive	8	20.5	31	79.5		
Coordination of in-jail mental health treatment	4	21.1	15	79	0.77	(0.2–2.94)
Did not receive	8	17	39	83		
Coordination of in-jail substance abuse treatment	1	10	9	90	2.2	(0.25–19.24)
Did not receive	11	19.6	45	80.4		
Developed discharge plan	10	16.9	49	83.1	1.96	(0.33–11.57)
Did not receive	2	28.6	5	71.4		
Contact with community based staff for continuity of care	2	10	18	90	2.5	(0.49–12.64)
Did not receive	10	21.7	36	78.3		
Set up appointments for post-release HIV care	3	15	17	85	1.38	(0.33–5.74)
Did not receive	9	19.6	37	80.4		
Set up appointments for post-release substance abuse treatment	3	21.4	11	78.6	0.77	(0.17–3.32)
Did not receive	9	17.3	43	82.7		
Set up appointments for post-release mental health care	2	22.2	7	77.8	0.74	(0.13–4.13)
Did not receive	10	17.5	47	82.5		
Set up appointment for housing services	1	11.1	8	88.9	1.91	(0.22–16.93)
Did not receive	11	19.3	46	80.7		
Set up appointment with Ryan White case manager	10	19.6	41	80.4	0.63	(0.12–3.26)
Did not receive	2	13.3	13	86.7		

unpredictable nature of the jail makes this element especially challenging. For example, at times the JBCM would have limited time to conduct necessary jail-based activities with a given client. In addition, at any moment, the correctional facility could go under lockdown, a period in which all inmates would return to their cell for the lockdown period. Rescheduling evaluations could take a few hours or a few days. Lastly, even with established lines of communication with correctional staff, a client may be released without advanced notice making it difficult for JBCM's to track down clients in the community, highlighting the need for a discharge plan to be created at first contact.

Unfortunately, this study is limited by its small sample size and no control group. Given the large confidence interval, the results may be considered tentative. Additionally, the intent of the follow up interviews was to better understand the specific barriers and facilitators encountered but unfortunately, these follow up evaluation interviews were not consistently completed despite countless efforts from the study team to do so.

Conclusion

The goal of a jail-based case management services was to increase participants' linkage to care in the first 6 months following release. Once released, the impact of in-jail activities will wane over time and community-based services are needed. We found that communicating with and connecting clients to their Ryan White Case Manager was associated with retention in care at 12 months. Given the frequency of incarceration within PLWH, the provision of jail-based services that collaborate with community-based Ryan White funded case management may support or enhance continuous and coordinated engagement in HIV care among incarcerated populations and should be supported in order to achieve the 90:90:90 goal.

Table 3 Partcipant retention at 12 months post release

Services provided in jail by jail based case manager	Linked and not retained		Linked and retained		OR	(95% CI)
	n = 19	%	n = 35	%		
Individual counseling	3	15.8	5	14.3	1.13	(0.24, 5.33)
Did not receive	16	84.2	30	85.7		
Disease education/med management	6	31.6	14	40.0	0.69	(0.21, 2.25)
Did not receive	13	68.4	21	60.0		
Coordination of in jail HIV care	12	63.2	17	48.6	1.82	(0.58, 5.70)
Did not receive	7	36.8	18	51.4		
Coordination of in-jail non-HIV medical care	10	52.6	13	37.1	1.88	(0.61, 5.83)
Did not receive	9	47.4	22	62.9		
Coordination of in-jail mental health treatment	4	21.1	11	31.4	0.58	(0.16, 2.16)
Did not receive	15	78.9	24	68.6		
Coordination of in-jail substance abuse treatment	2	10.5	7	20.0	0.88	(0.28, 2.77)
Did not receive	17	89.5	28	80.0		
Developed discharge plan	18	94.7	31	88.6	2.32	(0.24, 22.41)
Did not receive	1	5.3	4	11.4		
Contact with community based staff for continuity of care	5	26.3	13	37.1	0.6	(0.18, 2.07)
Did not receive	14	73.7	22	62.9		
Set up appointments for post-release HIV care	5	26.3	12	34.3	0.68	(0.20, 2.36)
Did not receive	14	73.7	23	65.7		
Set up appointments for post-release substance abuse treatment	3	15.8	8	22.9	0.63	(0.15, 2.74)
Did not receive	16	84.2	27	77.1		
Set up appointments for post-release mental health care	1	5.3	6	17.1	0.27	(0.03, 2.10)
Did not receive	18	94.7	29	82.9		
Set up appointment for housing services	3	15.8	5	14.3	1.13	(0.24, 5.33)
Did not receive	16	84.2	30	85.7		
Set up appointment with Ryan White case manager*	18	94.7	23	65.7	**9.39**	**(1.11, 79.12)**
Did not receive	1	5.3	12	34.3		

*p value = .017

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Compliance with Ethical Standards

Conflict of interest All authors report no conflict of interest.

Ethical Approval All study procedures were approved by the Metro-Health IRB protocols #08-00124 and #09-01301 and were performed in compliance with the Declaration of Helsinki. A certificate of confidentiality was received for additional protection of subjects. All study participants completed informed consent prior to any study related activities.

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