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A Mixed-Methods Exploration of the Needs of People Living with HIV (PLWH) Enrolled in Access to Care, a National HIV Linkage, Retention and Re-Engagement in Medical Care Program

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Abstract

Competing needs pose barriers to engagement in HIV medical care. Mixed methods were used to explore and describe the needs of participants enrolled in Access to Care, a national HIV linkage, retention and re-engagement in care (LRC) program that served people living with HIV who knew their status but were not engaged in care. When asked to prioritize their most urgent needs, participants reported housing or shelter (31%), HIV medical services (24%), and employment (8%). When we assessed the HIV continuum of care by needs status, we found no significant differences in linkage, retention, or viral suppression between participants with and without basic needs. Qualitative interviews with program staff contextualized the barriers to HIV medical care faced by participants and explored the strategies used by LRC programs to address participant needs. Study findings will be of use to future programs and have implications for HIV policy, in particular the implementation of the National HIV/AIDS Strategy (2015–2020).

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Compliance with Ethical Standards

Conflict of interest Catherine Maulsby, Blessing Enobun, D. Scott Batey, Kriti Jain, The Access to Care Intervention Team, Maura Riordan, Melissa Werner, and David Holtgrave have no conflicts of interest to disclose.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Program sites underwent IRB approval locally. Program evaluation activities implemented by ActionWellness (Chesapeake IRB) and The Damien Center (IntegReview) were found to be non-human subjects research and to not require IRB oversight. Program evaluation activities conducted by the University of Alabama at Birmingham (University of Alabama) and Louisiana Public Health Institute (Ethical and Independent Review Services) were found to be human subjects research and informed consent was obtained from participants. JHU's IRB found the qualitative portion of this study to be non-human subjects research and informed consent was not obtained for individuals interviewed about organizational-level programmatic activities.

Keywords

Retention in HIV medical care; Social determinants of health; Basic needs; Continuum of HIV care

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Introduction

In 2011, of the estimated 1.2 million persons living with HIV (PLWH) in the United States (US), 14% were undiagnosed, 60% were not currently engaged in HIV medical care, 63% were not prescribed antiretroviral therapy (ART), and 70% were not virally suppressed [1, 2]. It is estimated that 61% of new HIV transmissions are from individuals who have been diagnosed but are not in care [3], and poor retention in medical care leads to poor health outcomes for PLWH [4]. As outlined in the National HIV/AIDS Strategy (NHAS), linking PLWH to high-quality HIV care and providing support for continued retention in care are critical strategies for achieving a reduction in HIV transmission and for improving the well-being of PLWH [5, 6].

Survival needs such as poverty, food insecurity, unstable housing, and lack of transportation are closely associated with HIV treatment failure, and must be addressed to enhance the health and well-being of PLWH [7]. These competing needs pose barriers to optimal engagement at each stage of the HIV care continuum. Known barriers to HIV care can be grouped into three main categories—healthcare system factors (e.g., system navigation, scheduling appointments, facility waiting time, travel time to clinic, lack of culturally sensitive care, inconvenient visit hours, and care location), social factors (e.g., stigma, psychological or emotional barriers, and confidentiality concerns) and lastly, characteristics common among risk populations (e.g., financial constraints, homelessness, substance use, lack of health insurance, and mental illness) [2, 8]. Strategies used to moderate participant needs and barriers to care have included collaboration among community organizations, individualized case management plans, peer navigation systems, care team approaches, and coordinated health care services [2]. A recent literature review suggests that addressing structural and systems level participant needs and barriers to care is an important strategy for both LRC interventions [9].

In 2011, AIDS United, in collaboration with the Corporation for National and Community Service's (CNCS) Social Innovation Fund (SIF), launched Access to Care (A2C). A2C sought to accelerate the achievement of the NHAS goals by providing LRC services to vulnerable populations. A2C consisted of 12 interventions located throughout the US. The SIF intervention models varied across the cohort in order to provide a locally tailored response to the HIV epidemic and populations in greatest need; however, all A2C programs shared the common elements of being evidence-based, being comprised of a network of two or more implementing agencies, and including a focus on the reduction of participant needs. A key strategy of the A2C programs was identifying and responding to needs as prioritized by PLWH who were suboptimally engaged in HIV medical care.

The aim of this mixed methods study is to (a) describe the needs of PLWH who are suboptimally engaged in care, (b) describe the continuum of care for PLWH with and without

unmet basic needs, and (c) explore the experiences of program staff in addressing participant needs during program implementation. The purpose of this analysis is to gain a deeper understanding of the needs experienced by out-of-care PLWH, differences in outcomes by needs status at enrollment, and programmatic strategies to address needs in order to inform future programs and research.

Methods

Research Context

A2C was implemented in 12 US locations and was comprised of two cohorts of grantees, which were funded under two separate grant making cycles. This study focuses on findings from the four A2C interventions in the second cohort of A2C grantees (n = 458). The four grantee sites were located in: Philadelphia, PA, multiple locations throughout Louisiana, Birmingham, AL, and Indianapolis, IN (Table 1). Care Coach for Incarcerated Individuals (CCII) in Philadelphia and the Louisiana Reentry Initiative (LRI) were two interventions implemented by A2C sites which worked with current or formerly incarcerated individuals to promote LRC upon release from jail or prison. CCII used a model that included an emphasis on case management and discharge services. LRI had three program arms that operated in various locations throughout Louisiana. In New Orleans, a pre-post release case manager worked within a local prison to provide re-engagement to HIV medical care upon release and transitional case management. The second arm focused on community outreach to formerly incarcerated women in New Orleans who were not engaged in HIV medical care. Also, in Baton Rouge a health navigator provided services to individuals not in care, focusing on young black men with a history of incarceration. Birmingham Access to Care (BA₂C) used a tailored ARTAS (Anti-Retroviral Treatment and Access to Services) model to provide strengths-based case management to promote re-engagement and retention in HIV medical care and enhanced support accessing social services. In Indianapolis, Linkage to Care (L2C) used a patient navigation model that included reducing transportation as a barrier to care, appointment reminders, social service support, and health care navigation.

Quantitative Methods and Analysis

This study used a convergent parallel mixed-methods design where qualitative and quantitative data were integrated during interpretation [10]. For enrollment into the A2C program, potential program participants were recruited via clinic-based in-reach to the patient population, traditional outreach, and referrals from partner organizations. To be eligible for program enrollment, participants failed to meet criteria for the Health Resources and Services Administration HIV/AIDS Bureau's (HRSA-HAB) retention in care measure (at least two visits 60 days apart during the past 12 months) [11–13] or were otherwise considered sub-optimally engaged in care. The definition of sub-optimal care was tailored to match the issues of greatest concern for the population being served. For sites working with incarcerated populations, individuals who received regular care while incarcerated but were at risk for becoming lost to care upon release due to a high number of missed visits prior to incarceration or a high level of need were considered to be sub-optimally engaged in care. For sites that were not working with incarcerated populations, sub-optimal care was defined based on missed visits or gaps in care other than those meeting criteria for the HRSA-HAB

measure. All participants enrolled in the second cohort of the A2C program (n = 458) were included in the quantitative analyses presented in this paper.

Self-reported data on participant needs was collected via an interviewer-administered survey at baseline. To assess needs, participants responded to, “I am going to read a list of services and resources. Please tell me which ones you currently need.” Participants selected one or more of the following answer responses: Drug and alcohol abuse treatment, housing or shelter, food or other subsistence need, dental services, HIV-related medical services, non-HIV-related medical services, pharmacy or medication services, mental health, none, and other specify. Participants were then asked to prioritize the one most urgent need. To further describe the needs of participants, we created a dichotomous variable of whether or not a participant selected a basic need as their most urgent need at baseline. We classified basic needs as housing or shelter, food or other subsistence need, and “other” responses related to transportation, education, employment, income, food, clothing and/or childcare [14].

To illustrate cross-site and site-specific HIV continuums of care, we defined engagement in care as having attended a HIV medical visit with a provider with prescribing privileges after enrollment into the A2C program. Retention in care was defined using the HRSA-HAB measure of having attended at least two HIV medical visits separated by at least 60 days in the past 12 months [11, 12]. Viral suppression was defined as having a viral load less than or equal to 200 copies per milliliter [1]. HIV medical visit and viral suppression data came from existing medical and surveillance records. We used dates closest to program enrollment, six months following enrollment and twelve months following enrollment to assess trends in retention and viral suppression. Participants who were retained in HIV medical care at either a six or twelve month follow-up point were included in the continuum of care as retained. Similarly, if a participant was suppressed at any follow-up data point (six or twelve months) they were coded as suppressed at follow-up and included in the continuum of care bar for viral suppression. If data on retention or viral suppression were not available at either six or twelve month follow-up, participants were categorized as not being retained or virally suppressed, respectively. Twenty-three percent of participants had missing data on retention at both follow-up points (n = 107) and thirty-one percent of participants had missing data at on viral suppression at both follow-up points (n = 142). We constructed HIV continuum of care models for all enrolled participants and by program site. In addition, for all enrolled participants and by program site, we developed continuum of care models by whether or not a participant’s most urgent need at baseline was a basic need.

Data were collected at each A2C intervention site, entered into standardized Microsoft Excel spreadsheets in aggregate, and submitted to program evaluators at Johns Hopkins as part of a multi-tiered national evaluation of the A2C cohort [15]. Statistical inference was based on the Chi Square test and statistical significance was assessed at the $p < 0.05$ level. Data analyses were conducted in Microsoft Excel. All data collection activities underwent independent local Institutional Review Board (IRB) review prior to execution. Evaluation activities conducted by Johns Hopkins were found to be non-human subjects’ research by the university’s IRB.

Qualitative Methods and Analysis

The data for the qualitative component of this mixed-methods study included 27 semi-structured interviews conducted by members of the national evaluation team at Johns Hopkins from April 2015 to February 2016. We interviewed two cadres of staff at each implementing agency—supervisors (n = 14) and direct service (n = 13) staff—in order to gain a range of perspectives on barriers and facilitators of program implementation. Participants were purposively sampled based on recommendations from evaluation and program staff. Researchers conducted one-on-one phone interviews that lasted approximately 90 min using a semi-structured interview guide. Interviews were digitally recorded, professionally transcribed, and analyzed in ATLAS.ti 7.0 [16]. Data were analyzed by a team of five individuals composed of Johns Hopkins faculty, staff, and students. Our interview guide included open-ended questions as well as more targeted questions that focused on barriers to implementation, collaboration between partner agencies, and the key components of the program models. We used directed content analysis to analyze the data [17]. First, we read through the transcripts without coding to allow for immersion. We conducted the initial round of coding using a coding schema based on our predefined research questions, the research literature, and the interview guide. We discussed discrepancies in coding and additional themes, and we added or reclassified codes as needed. Though we did not ask specifically about participant needs, participant needs emerged as a theme across all sites in conversations about barriers to implementing linkage and retention in care programs.

Results

Quantitative Results

A2C programs enrolled a total of 458 individuals across the four sites (Table 2). Participants were mostly male (71%), African American (65%), and had a high school diploma or less (71%). Approximately half of participants were under the age of 30. At enrollment, 64% of participants were out of care, and 41% were not virally suppressed.

Across the four program sites, when asked to report on their full list of needs, over half of the participants reported needing non-HIV related medical services (55%), housing (58%), food (62%), pharmacy or medication services (63%), HIV-related medical services (67%), and dental services (68%) (Table 3). Participants were also asked to name their most urgent need. Across all sites, the most urgent needs identified by program participants were housing or shelter (31%) followed by HIV medical services (24%) and employment (8%). When we reviewed the most frequently reported urgent need, a basic need (either housing or food) surpassed the need for HIV-related medical services at each site except for Indianapolis's Linkage to Care.

When we looked at the HIV continuum of care for all participants (n = 458) (Table 4), we found that 86% of participants were engaged in care after enrollment, 65% were retained in HIV care, and 54% were virally suppressed. When we combined the data across the four programs, we did not see statistical differences in HIV medical care engagement between participants with and without an urgent basic need at enrollment. Among participants with

an urgent basic need, 86% were engaged in care after enrollment, 73% were retained in care, and 54% had a suppressed viral load. Among participants without an urgent basic need, 85% were engaged in care, 60% were retained in care, and 54% had a suppressed viral load. When we looked at the continuum of care by an urgent basic need at the site level, we found a significant difference in retention in Louisiana. Specifically, 83% of participants with a basic need were retained in HIV care compared to 56% without a prioritized basic need at enrollment ($p < 0.0001$).

Qualitative Results

Across all programs, program staff identified housing and employment as the most salient non-medical needs of A2C participants. Respondents often discussed housing needs and unemployment together and framed housing needs and unemployment both as root causes of HIV acquisition and as a barrier to optimal engagement in HIV medical care:

When a person tests positive often people forget that there's other things in their life. There's still life that must go on, we just attach a new keychain to it. And often the only focus is the keychain that we've just attached to it. We forget that prior to testing that there was employment issues; we forget prior to testing that there were housing issues, and a lot of the barriers and a lot of the contributing factors to a person testing positive was lack of socioeconomic status, lack of housing.

Program staff addressed housing by providing services that mitigated some of the negative impacts of unstable housing on retention in HIV care and by working with participants to meet their housing needs. Staff described program models that buffered some of the instability brought on by unstable housing (as well as unemployment) such as regular contact with program staff, appointment reminders, medication reminders, and access to drop in centers. To help meet the housing needs of their participants, A2C programs relied on referrals to housing services. Two of the programs referred participants to housing services within the A2C lead agency. Action Wellness, the lead agency for the CCII program, employed six housing counselors and ran two supportive housing programs, Casa Nueva Vida and Positive Living. The Damien Center, the lead agency for Linkage to Care, provided housing case management and direct emergency financial assistance. The remaining two programs, LRI and BA₂C, referred participants to organizations external to the A2C network for housing services. In addition to providing referrals, A2C staff reported that they educated participants about housing options and helped participants to understand and navigate housing qualifications and services. Regardless of the strategy, respondents expressed frustration over the dearth of available housing and long waitlists. Incarcerated or formerly incarcerated participants faced additional challenges accessing housing. These participants were ineligible for many housing assistance programs because they were currently incarcerated (and, therefore, not considered homeless) or due to an existing criminal record. While some A2C participants had their housing needs met through the program, A2C initiated a process of working towards housing goals for the majority of participants. As staff explained:

Six months is a very short time to deal with something like homelessness, so I can refer to shelters all day long, I can help do a few resumes, stuff like that, but still at the end of my six months my client wasn't—he was still homeless, but during my six

months I was able to refer him to [name of housing program], and at the end of the six months, yeah, he was still homeless with me, but he had never even heard of [name of housing program] before he was exposed to [our program], so that was the good thing, that we could make those connections.

Similar to housing needs, staff expressed a need for additional services to address the challenge of unemployment and underemployment. Programs provided employment services (such as GED classes, interview preparation, resume and cover letter writing, and employment searches) as well as referrals to employment services. Lack of available jobs was a pervasive barrier to meeting participants' employment-related needs. While strategies to combat participant needs around housing and employment at the individual level were seen as necessary and of great benefit, program implementers voiced a need for broader structural change:

There's a lot of talk about how we need housing and how we need jobs, but nothing's really being done. So I can see slow movement in reentry circles of ways that we can address these issues, so I just think that this needs to be— I mean, we've been screaming from the bottom up. I think it's now time for top-down to start doing something meaningful in a policy arena.

Discussion

Participants of the A2C linkage and retention in care program reported a large burden of unmet needs. The majority of participants reported a need for housing, food or other subsistence need, dental services, HIV-related medical services, and pharmacy or medication services. These findings support prior research that has documented a high burden of need among individuals who are not retained in HIV care [18–20]. When participants were asked to prioritize their needs, basic needs were the most frequently reported, surpassing medical needs. Only 24% of participants reported HIV medical needs as their most urgent need.

Our qualitative analysis further explored the needs of participants from the perspective of LRC program staff. Staff identified housing and employment as the most salient needs of participants. These findings were also reflected in our quantitative analysis. A2C participants prioritized their most urgent needs as housing, HIV medical services, and employment. Closely interrelated, housing and employment were described by staff as contributing factors to both HIV and sub-optimal engagement in HIV care. Universally, staff reported shortages of services to address the needs of PLWH who were not engaged in HIV care, most notably housing services. Staff reported that while they were able to initiate the process of addressing participants' basic needs, they were often not able to meet these needs during the timeframe of the A2C program.

When we assessed the HIV continuum of care among participants enrolled in the four A2C programs included in this analysis, we found that 54% were virally suppressed at follow-up which compares favorably to other programs [21, 22]. When we analyzed the continuum of care by whether or not a participant prioritized a basic need at enrollment, we did not find differences in engagement in HIV care among participants who reported an urgent basic

need at enrollment and those that did not. The only exception was one program, LRI, in which participants with basic needs had a greater likelihood of retention in HIV care.

Other research suggests that intervention effects might vary by needs. A randomized controlled trial of a retention in care intervention (brief face-to-face visit, appointment reminder calls, and missed visit calls for the intervention arm vs. standard of care for the control arm) found overall increases in retention in care among PLWH exposed to the intervention. However, when the study assessed effects among subgroups, it found that the intervention was not effective for individuals with at least one unmet need in the past six months [23]. With the exception of one site, our study did not find differences in movement along the continuum of care for participants with and without basic needs at enrollment. Rather, we found that individuals with basic needs fared as well as (or better than) those without basic needs. This could suggest that the strategies being employed by the A2C programs (such as outreach to the most vulnerable populations, intensive case management, transportation, appointment reminders, and adherence reminders) might help to mitigate some of the negative impacts of having unmet basic needs on engagement in HIV care.

In the qualitative analysis, program staff identified two primary strategies to address basic needs as barriers to HIV retention in care: (1) providing services to alleviate some of the mechanisms through which homelessness and unemployment negatively impact HIV retention in care and (2) working with participants to identify and work towards their housing and employment goals. While programs such as A2C might buffer the impact of not having one's basic needs met on engagement in HIV care, in order to see sustainable population-level improvements in health outcomes, system-level change is needed to address the social determinants of health with a focus on housing and employment.

There are limitations to this study. First, the study did not include a comparison or control group so making definitive causal claims or testing causal hypotheses with the quantitative data was not possible. Second, gathering follow-up data on participants was challenging given the transient nature of individuals enrolled in A2C. This limited our ability to meaningfully conduct additional analyses such as tracking participant needs over time. In addition, when follow-up data on retention or viral suppression were not available on participants, we considered these individuals not retained and not virally suppressed. This is a conservative approach which may result in underestimates of retention and viral suppression. We faced challenges gathering data on whether or not participants were on HAART, and, therefore, this information was not included in our continuums of HIV care. Johns Hopkins only had access to aggregate data which also limited the type of analyses conducted. Findings from this analysis are not generalizable beyond the study population. However, it is important to note that findings were very similar across programs that varied in program model, population being served, and location of intervention. A2C staff who participated in the qualitative portion of this study were only interviewed once; so, we were unable to ascertain a deeper understanding of participants' responses through follow-up interviews. Finally, we interviewed intervention staff and, therefore, we were not able to capture the perspectives of participants.

Our findings suggest that participants enrolled in A2C progressed along the continuum of HIV care and that participants with basic needs at enrollment fared as well as those without basic needs. Program staff voiced a severe shortage of services, in particular housing and employment services. The NHAS calls for reductions in homelessness among PLWH to 5% and, while specific targets for employment are not set, the importance of employment initiatives for PLWH is recognized [6]. While long-term policy solutions are needed to address the unmet needs of PLWH, programs such as A2C offer a temporary cost-effective solution [24, 25]. The A2C programs provide some preliminary examples of how housing and employment services can be integrated into linkage and retention in care programs and how the assessment of social determinants of health can be incorporated into monitoring and evaluation.

However, more housing resources and housing services are needed for PLWH, particularly those with advanced disease and individuals who were recently incarcerated. Revising the formula and requirements for the Housing Opportunities for Persons with AIDS (HOPWA) program is an example of policy-level approaches that could increase access to housing for PLWH. In addition, Ryan White Planning Councils could dedicate additional funding for housing for PLWH (particularly those recently released from jail or with advanced disease) as well as for employment-related services and training. Future research is needed to develop and test the efficacy of integrated LRC and employment co-ordination/navigation services that provide a comprehensive assessment of employment-related needs, referrals to job readiness and job training programs, relationships with local employers, job placement, and job retention support such as managing disability benefits while employed and reducing stigma and discrimination in the workplace.

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Table 1

Description of A2C interventions

Intervention name	Location	Lead agency	Inclusion criteria	Intervention model	Average duration of services
Birmingham Access 2 Care (BA ₂ C)	Birmingham, AL	University of Alabama at Birmingham	Individuals without at least two visits separated by at least 90 days over a 12-month period or with a gap in HIV primary medical care visits of 7 months or more or with two or more missed visits in the past 12 months	ARTAS?: a tailored and adapted model of the evidenced-based ARTAS linkage to care intervention that includes booster sessions to provide support and navigation for social services to address client needs	6 months
Care Coach for Incarcerated Individuals (CCII)	Philadelphia, PA	Action wellness	Incarcerated individuals who are transitioning back into the community with "sever needs" on the Acuity Vulnerability Screening Scale (AVS)	Care Coach Collaborative Model: intensive case management and discharge planning services. Community provider coordination, including team meetings, with a housing agency, a mental health organization, and a substance abuse facility	24 months
Linkage to Care (L2C)	Indianapolis, IN	The Damien Center	Individuals with no HIV medical visits for 1 year or more or newly diagnosed seropositive	Patient navigation: individualized care plan to address needs and barriers. Transportation to and from medical and support services. Text and phone call appointment reminders, adherence reminders, and support. Social service and health navigation	18 months
Louisiana Reentry Initiative (LRI)	New Orleans, LA and Baton Rouge, LA	Louisiana Public Health Institute	Current and former prisoners, including women and young Black men who have sex with men	Pre and post release case management. Community outreach. Health navigation	On-going

Table 2

Characteristics of SIF participants

	BA ₂ C n (%)	CCH n (%)	L2C n (%)	LRI n (%)	Total n (%)
Total	87 (0.19)	78 (0.17)	149 (0.33)	144 (0.31)	458 (1.00)
Sex ^a					
Male	57 (0.66)	50 (0.64)	110 (0.74)	108 (0.75)	325 (0.71)
Female	30 (0.34)	23 (0.29)	32 (0.21)	22 (0.15)	107 (0.23)
Transgender	0 (0.00)	5 (0.06)	6 (0.04)	8 (0.06)	19 (0.04)
Other/Missing	0 (0.00)	0 (0.00)	1 (0.01)	6 (0.04)	7 (0.02)
Race/Ethnicity ^a					
Black/African American	64 (0.74)	46 (0.59)	69 (0.46)	119 (0.83)	298 (0.65)
Hispanic/Latino	0 (0.00)	20 (0.26)	17 (0.11)	2 (0.01)	39 (0.09)
White	19 (0.22)	8 (0.10)	43 (0.29)	16 (0.11)	86 (0.19)
Not Black, Hispanic, or White	4 (0.05)	4 (0.05)	11 (0.07)	1 (0.01)	20 (0.04)
Missing	0 (0.00)	0 (0.00)	9 (0.06)	6 (0.04)	15 (0.03)
Age ^a					
B24	4 (0.05)	1 (0.01)	40 (0.27)	13 (0.09)	58 (0.13)
25–29	7 (0.08)	10 (0.13)	29 (0.19)	22 (0.15)	68 (0.15)
30–39	16 (0.18)	21 (0.27)	37 (0.25)	37 (0.26)	111 (0.24)
40–49	29 (0.33)	30 (0.38)	24 (0.16)	37 (0.26)	120 (0.26)
50?	31 (0.36)	16 (0.21)	16 (0.11)	22 (0.15)	85 (0.19)
Missing	0 (0.00)	0 (0.00)	3 (0.02)	13 (0.09)	16 (0.03)
Education ^a					
Less than high school	17 (0.20)	54 (0.69)	43 (0.29)	73 (0.51)	187 (0.41)
High school diploma or equivalent	19 (0.22)	21 (0.27)	49 (0.33)	49 (0.34)	138 (0.30)
Some college or technical school	41 (0.47)	2 (0.03)	46 (0.31)	19 (0.13)	108 (0.24)
College or higher education	9 (0.10)	0 (0.00)	11 (0.07)	3 (0.02)	23 (0.05)
Missing/refused	1 (0.01)	1 (0.01)	0 (0.00)	0 (0.00)	2 (0.00)
Care status at enrollment ^a					
Sub-optimal care	59 (0.68)	23 (0.29)	0 (0.00)	85 (0.59)	167 (0.36)

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	BA ₂ C n (%)	CCII n (%)	L2C n (%)	LRI n (%)	Total n (%)
Out-of-care	28 (0.32)	55 (0.71)	149 (1.00)	59 (0.41)	291 (0.64)
Suppressed viral load at enrollment ^a					
Yes	35 (0.40)	33 (0.42)	16 (0.11)	55 (0.38)	139 (0.30)
No	22 (0.25)	33 (0.42)	78 (0.52)	53 (0.37)	186 (0.41)
Unknown	30 (0.34)	12 (0.15)	55 (0.37)	36 (0.25)	133 (0.29)

^aSignificantly different by site at p < .05. Sex $\chi^2 = 73.443$ p < 0.00001, Race $\chi^2 = 10.856$ p < 0.012, Age $\chi^2 = 73.443$ p < 0.00001, Education $\chi^2 = 95.153$ p < 0.0001, care status $\chi^2 = 152.20$ p < 0.00001, suppressed viral load $\chi^2 = 48.82$ p < 0.00001

SIF participant needs at enrollment

Table 3

	BA ₂ C n (%)	CCII n (%)	L2C n (%)	LRI n (%)	Total n (%)
Needs (not mutually exclusive)					
Drug and alcohol abuse treatment	3 (0.03)	54 (0.69)	19 (0.13)	34 (0.24)	110 (0.24)
Housing or shelter	24 (0.28)	69 (0.88)	88 (0.59)	85 (0.59)	266 (0.58)
Food or other subsistence need	60 (0.69)	61 (0.78)	84 (0.56)	81 (0.56)	286 (0.62)
Dental services	58 (0.67)	62 (0.79)	107 (0.72)	84 (0.58)	311 (0.68)
HIV-related medical services	25 (0.29)	61 (0.78)	129 (0.87)	93 (0.65)	308 (0.67)
Non-HIV-related medical services	26 (0.3)	51 (0.65)	89 (0.60)	88 (0.61)	254 (0.55)
Pharmacy or medication services (for HIV or non HIV reasons)	32 (0.37)	63 (0.81)	113 (0.76)	80 (0.56)	288 (0.63)
Mental health	22 (0.25)	52 (0.67)	66 (0.44)	50 (0.35)	190 (0.41)
Transportation	12 (0.14)	0 (0.00)	0 (0.00)	0 (0.00)	12 (0.03)
Employment	1 (0.01)	1 (0.01)	67 (0.45)	72 (0.50)	141 (0.31)
Vision	3 (0.03)	0 (0.00)	87 (0.58)	0 (0.00)	90 (0.20)
Legal	1 (0.01)	0 (0.00)	35 (0.23)	0 (0.00)	36 (0.08)
None	3 (0.03)	0 (0.00)	2 (0.01)	0 (0.00)	5 (0.01)
Other specify	0 (0.00)	1 (0.01)	7 (0.05)	6 (0.04)	14 (0.03)
Missing	0 (0.00)	1 (0.01)	0 (0.00)	0 (0.00)	1 (0.00)
Single most urgent need (mutually exclusive)					
Drug and alcohol abuse treatment	0 (0.00)	13 (0.17)	2 (0.01)	3 (0.02)	18 (0.04)
Housing or shelter	18 (0.21)	36 (0.46)	45 (0.30)	41 (0.28)	140 (0.31)
Food or other subsistence need	19 (0.22)	0 (0.00)	1 (0.01)	6 (0.04)	26 (0.06)
Dental services	12 (0.14)	2 (0.03)	10 (0.07)	8 (0.06)	32 (0.07)
HIV-related medical services	11 (0.13)	11 (0.14)	52 (0.35)	34 (0.24)	108 (0.24)
Non-HIV-related medical services	2 (0.02)	1 (0.01)	2 (0.01)	14 (0.10)	19 (0.04)
Pharmacy or medication services (for HIV or non HIV reasons)	3 (0.03)	2 (0.03)	10 (0.07)	3 (0.02)	18 (0.04)
Mental health	3 (0.03)	4 (0.05)	6 (0.04)	2 (0.01)	15 (0.03)
Transportation	5 (0.06)	0 (0.00)	0 (0.00)	0 (0.00)	5 (0.01)
Employment	0 (0.00)	2 (0.03)	9 (0.06)	24 (0.17)	35 (0.08)
Vision	0 (0.00)	0 (0.00)	2 (0.01)	0 (0.00)	2 (0.00)

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	BA ₂ C n (%)	CCII n (%)	L2C n (%)	LRI n (%)	Total n (%)
Legal	1 (0.01)	0 (0.00)	4 (0.03)	0 (0.00)	5 (0.01)
None	7 (0.08)	0 (0.00)	2 (0.01)	0 (0.00)	9 (0.02)
Not applicable	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Other specify	0 (0.00)	0 (0.00)	0 (0.00)	9 (0.06)	9 (0.02)
Don't know, refused, missing	6 (0.07)	7 (0.09)	4 (0.03)	0 (0.00)	17 (0.04)

Table 4

Continuum of care by basic need

	Enrolled	Engaged	χ^2 , p value	Retained	χ^2 , p-value	Suppressed viral load	χ^2 , p-value
All programs							
Total	458 (1.00)	394 (0.86)		298 (0.65)		249 (0.54)	
Basic need							
Yes	206 (0.45)	177 (0.86)	2.37, 0.213	150 (0.73)	2.90, 0.111	112 (0.54)	0.12, 0.789
No	235 (0.51)	200 (0.85)		140 (0.60)		128 (0.54)	
Missing	17 (0.04)	17 (1.00)		8 (0.47)		9 (0.53)	
BA₂C							
Total	87 (1.00)	80 (0.92)		57 (0.66)		46 (0.53)	
Basic need							
Yes	42 (0.48)	36 (0.86)	3.52, 0.110	29 (0.69)	0.50, 0.494	22 (0.52)	0.11, 0.825
No	39 (0.45)	38 (0.97)		24 (0.62)		19 (0.49)	
Missing	6 (0.07)	6 (1.00)		4 (0.67)		5 (0.83)	
Care Coach for Incarcerated Individuals							
Total	78 (1.00)	76 (0.97)		52 (0.67)		53 (0.68)	
Basic need							
Yes	38 (0.49)	38 (1.00)	2.37, 0.213	31 (0.82)	2.90, 0.111	29 (0.76)	0.12, 0.788
No	33 (0.42)	31 (0.94)		21 (0.64)		24 (0.73)	
Missing	7 (0.09)	7 (1.00)		0 (0.00)		0 (0.00)	
Linkage to Care (TDC)							
Total	149 (1.00)	118 (0.79)		89 (0.6)		73 (0.49)	
Basic need							
Yes	55 (0.37)	42 (0.76)	0.27, 0.678	31 (0.56)	0.19, 0.729	21 (0.38)	3.14, 0.089
No	90 (0.6)	72 (0.80)		54 (0.60)		48 (0.53)	
Missing	4 (0.03)	4 (1.00)		4 (1.00)		4 (1.00)	
Louisiana Reentry Initiative							
Total	144 (1.00)	120 (0.83)		100 (0.69)		77 (0.53)	
Basic need							
Yes	71 (0.49)	61 (0.86)	0.67, 0.504	59 (0.83)	12.31, 0.000	40 (0.56)	0.46, 0.509

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	Enrolled	Engaged	Retained	Suppressed viral load	X ² , p-value
No	73 (0.51)	59 (0.81)	41 (0.56)	37 (0.51)	0 (0.00)
Missing	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)