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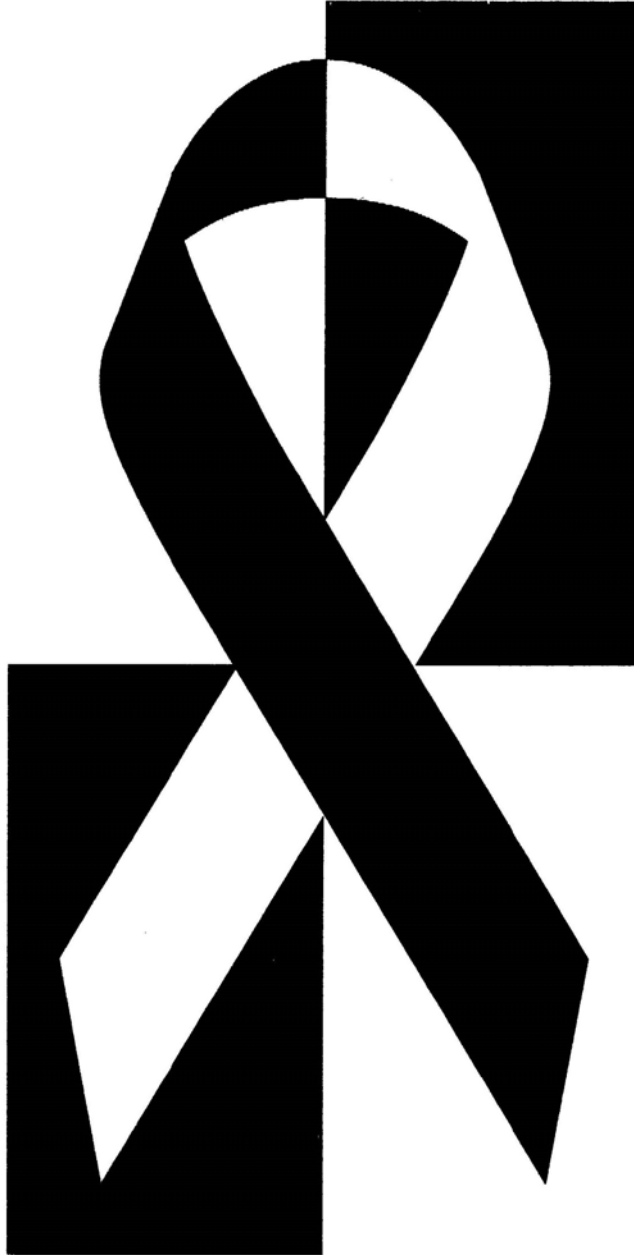
### Service Category Definition - DSHS State Services

Local Service Category:	<b>Early Intervention Services – Incarcerated</b>
Amount Available:	<b>To be determined</b>
Unit Cost	
Budget Requirements or Restrictions <b>(TRG Only)</b> :	Maximum 10% of budget for Administrative Cost. No direct medical costs may be billed to this grant.
DSHS Service Category Definition:	<p>Support of Early Intervention Services (EIS) that include identification of individuals at points of entry and access to services and provision of:</p> <ul style="list-style-type: none"> <li>• HIV Testing and Targeted counseling</li> <li>• Referral services</li> <li>• Linkage to care</li> <li>• Health education and literacy training that enable clients to navigate the HIV system of care</li> </ul> <p>These services must focus on expanding key points of entry and documented tracking of referrals.</p> <p>Counseling, testing, and referral activities are designed to bring people living with HIV into Outpatient Ambulatory Medical Care. The goal of EIS is to decrease the number of underserved individuals with HIV/AIDS by increasing access to care. EIS also provides the added benefit of educating and motivating clients on the importance and benefits of getting into care.</p>
Local Service Category Definition:	This service includes the connection of incarcerated in the Harris County Jail into medical care, the coordination of their medical care while incarcerated, and the transition of their care from Harris County Jail to the community. Services must include: assessment of the client, provision of client education regarding disease and treatment, education and skills building to increase client's health literacy, completion of THMP/ADAP application and submission via ARIES upload process, care coordination with medical resources within the jail, care coordination with service providers outside the jail, and discharge planning.
Target Population (age, gender, geographic, race, ethnicity, etc.):	People living with HIV incarcerated in The Harris County Jail.
Services to be Provided:	Services include but are not limited to CPCDMS registration/update, assessment, provision of client education, coordination of medical care services provided while incarcerated, medication regimen transition, multidisciplinary team review, discharge planning, and referral to community resources.
Service Unit Definition(s) <b>(TRG Only)</b> :	One unit of service is defined as 15 minutes of direct client services or coordination of care on behalf of client.
Financial Eligibility:	Due to incarceration, no income or residency documentation is required.
Client Eligibility:	People living with HIV incarcerated in the Harris County Jail.
Agency Requirements <b>(TRG Only)</b> :	<p>As applicable. the agency's facility(s) shall be appropriately licensed or certified as required by Texas Department of State Health Services, for the provision of HIV Early Intervention Services, including phlebotomy services.</p> <p>Agency/staff will establish memoranda of understanding (MOUs) with key points of entry into care to facilitate access to care for those who are identified by testing in HCJ. Agency must execute Memoranda of Understanding with Ryan White funded Outpatient Ambulatory Medical Care providers. The Administrative Agency must be notified in writing if any OAMC providers refuse to execute an MOU.</p>

Staff Requirements:	Not Applicable.
Special Requirements (TRG Only):	Must comply with the Houston EMA/HSDA Standards of Care. The agency must comply with <b>the DSHS Early Intervention Services Standards of Care</b> and <b>the Houston HSDA Early Intervention Services for the Incarcerated Standards of Care</b> . The agency must have policies and procedures in place that comply with the standards <i>prior</i> to delivery of the service.

***FY 2020 RWPC “How to Best Meet the Need” Decision Process***

<b>Step in Process: Council</b>		Date: <b>06/13/19</b>
Recommendations:	Approved: Y: _____ No: _____ Approved With Changes: _____	If approved with changes list changes below:
1.		
2.		
3.		
<b>Step in Process: Steering Committee</b>		Date: <b>06/06/19</b>
Recommendations:	Approved: Y: _____ No: _____ Approved With Changes: _____	If approved with changes list changes below:
1.		
2.		
3.		
<b>Step in Process: Quality Improvement Committee</b>		Date: <b>05/14/19</b>
Recommendations:	Approved: Y: _____ No: _____ Approved With Changes: _____	If approved with changes list changes below:
1.		
2.		
3.		
<b>Step in Process: HTBMN Workgroup #2</b>		Date: <b>04/23/19</b>
Recommendations:	Financial Eligibility: 300%	
1.		
2.		
3.		



EARLY INTERVENTION SERVICES - INCARCERATED  
2018 CHART REVIEW REPORT

## PREFACE

### DSHS Monitoring Requirements

The Texas Department of State Health Services (DSHS) contracts with The Houston Regional HIV/AIDS Resource Group, Inc. (TRG) to ensure that Ryan White Part B and State of Texas HIV Services funding is utilized to provide in accordance to negotiated Priorities and Allocations for the designated Health Service Delivery Area (HSDA). In Houston, the HSDA is a ten-county area including the following counties: Austin, Chambers, Colorado, Fort Bend, Harris, Liberty, Montgomery, Walker, Waller, and Wharton. As part of its General Provisions for Grant Agreements, DSHS also requires that TRG ensures that all Subgrantees comply with statutes and rules, perform client financial assessments, and delivery service in a manner consistent with established protocols and standards.

As part of those requirements, TRG is required to perform annual quality compliance reviews on all Subgrantees. Quality Compliance Reviews focus on issues of administrative, clinical, consumer involvement, data management, fiscal, programmatic, and quality management nature. Administrative review examines Subgrantee operating systems including, but not limited to, non-discrimination, personnel management and Board of Directors. Clinical review includes review of clinical service provision in the framework of established protocols, procedures, standards and guidelines. Consumer involvement review examines the Subgrantee's frame work for gather client feedback and resolving client problems. Data management review examines the Subgrantee's collection of required data elements, service encounter data, and supporting documentation. Fiscal review examines the documentation to support billed units as well as the Subgrantee's fiscal management and control systems. Programmatic review examines non-clinical service provision in the framework of established protocols, procedures, standards and guidelines. Quality management review ensures that each Subgrantee has systems in place to address the mandate for a continuous quality management program.

### QM Component of Monitoring

As a result of quality compliance reviews, the Subgrantee receives a list of findings that must be address. The Subgrantee is required to submit an improvement plan to bring each finding into compliance. This plan is monitored as part of the Subgrantee's overall quality management monitoring. Additional follow-up reviews may occur (depending on the nature of the finding) to ensure that the improvement plan is being effectively implemented.

### Scope of Funding

TRG contracts with one Subgrantee to provide Early Intervention Services in the Houston HSDA.

## INTRODUCTION

### Description of Service

Early Intervention Services-Incarceration (EIS) includes the connection of incarcerated in the Harris County Jail into medical care, the coordination of their medical care while incarcerated, and the transition of their care from Harris County Jail to the community. Services must include: assessment of the client, provision of client education regarding disease and treatment, education and skills building to increase client's health literacy, establishment of THMP/ADAP post-release eligibility (as applicable), care coordination with medical resources within the jail, care coordination with service providers outside the jail, and discharge planning.

### Tool Development

The Early Intervention Services review tool is based upon the established local standards of care.

### Chart Review Process

The collected data for each site was recorded directly into a preformatted computerized database. The data collected during this process is to be used for service improvement.

### File Sample Selection Process

Using the ARIES database, a file sample was created from a provider population of 789 who accessed Early Intervention Services in the measurement year. The records of 31 clients were reviewed (representing 4% of the unduplicated population). The demographic makeup of the provider was used as a key to file sample pull.

## Demographics-Early Intervention Services

2017 Annual		
<b>Total UDC:</b>	<b>Total New:</b>	
<b>760</b>	<b>256</b>	
Age	Number of Clients	% of Total
Client's age as of the end of the reporting period		
Less than 2 years	0	0.00%
02 - 12 years	0	0.00%
13 - 24 years	47	6.18%
25 - 44 years	408	53.68%
45 - 64 years	294	38.68%
65 years or older	11	1.45%
Unknown	0	0.00%
	<b>760</b>	<b>100%</b>
Gender	Number of Clients	% of Total
"Other" and "Refused" are counted as "Unknown"		
Female	121	15.92%
Male	622	81.84%
Transgender FTM	0	0.00%
Transgender MTF	17	2.24%
Unknown	0	0.00%
	<b>760</b>	<b>100%</b>
Race/Ethnicity	Number of Clients	% of Total
Includes Multi-Racial Clients		
White	129	16.97%
Black	532	70.00%
Hispanic	92	12.11%
Asian	2	0.26%
Hawaiian/Pacific Islander	0	0.00%
Indian/Alaskan Native	5	0.66%
Unknown	0	0.00%
	<b>760</b>	<b>100%</b>

From 01/01/17 - 12/31/17

2018 Annual		
<b>Total UDC:</b>	<b>Total New:</b>	
<b>789</b>	<b>Unk</b>	
Age	Number of Clients	% of Total
Client's age as of the end of the reporting period		
Less than 2 years	0	0.00%
02 - 12 years	0	0.00%
13 - 24 years	56	7.10%
25 - 44 years	449	56.90%
45 - 64 years	274	34.72%
65 years or older	10	1.27%
Unknown	0	0.00%
	<b>789</b>	<b>100%</b>
Gender	Number of Clients	% of Total
"Other" and "Refused" are counted as "Unknown"		
Female	122	15.46%
Male	651	82.50%
Transgender FTM	0	0.00%
Transgender MTF	16	2.03%
Unknown	0	0.00%
	<b>789</b>	<b>100%</b>
Race/Ethnicity	Number of Clients	% of Total
Includes Multi-Racial Clients		
White	223	28.26%
Black	557	70.60%
Hispanic	103*	13.05%
Asian	0	0.11%
Hawaiian/Pacific Islander	0	0.00%
Indian/Alaskan Native	2	0.25%
Multi-Race	7	0.89%
	<b>789</b>	<b>100%</b>

From 01/01/18 - 12/31/18





## RESULTS OF REVIEW

### Intake Assessment

Percentage of clients who had a completed intake assessment present in the client record.

	Yes	No	N/A
Number of clients with a completed intake assessment in the client record.	30	0	-
Number of clients in EIS services that were reviewed.	30	30	-
Rate	<b>100%</b>	<b>0%</b>	-

### Health Literacy and Education: Risk Assessment

Percentage of clients that had documentation of the client being assessed for risk and provided targeted health literacy and education in the client record (including receipt of a blue book).

	Yes	No	N/A
Number of client records that documented health literacy and education.	30	0	-
Number of clients in EIS services that were reviewed.	30	30	-
Rate	<b>100%</b>	<b>7%</b>	-

### Linkage: Newly Diagnosed

Percentage of newly-diagnosed clients that initiate care through the EIS program

	Yes	No	N/A
Number of newly-diagnosed clients that initiate care through the EIS program	5	0	25
Number of clients in EIS services that were reviewed.	5	5	30
Rate	<b>100.0%</b>	<b>0%</b>	<b>83%</b>

### Referral: Medical Care

Percentage of clients that accessed a referral to a primary care provider and/or essential service in the client record.

	Yes	No	N/A
Number of client records that document a referral in the client file	29	1	-
Number of clients in EIS services that were reviewed.	30	30	-
Rate	<b>97%</b>	<b>3%</b>	-

Percentage of clients that had referral follow-up in the client record

	Yes	No	N/A
Number of client records that showed evidence of referral follow-up in the client record.	29	1	-
Number of clients in EIS services that were reviewed.	30	30	-
Rate	<b>97%</b>	<b>3%</b>	-

Discharge Planning

Percentage of clients who had a discharge plan present in the client record.

	Yes	No	N/A
Number of clients with a completed discharge plan in the client record.	25	5	-
Number of clients in EIS services that were reviewed.	30	30	-
Rate	<b>83%</b>	<b>17%</b>	-

Percentage of clients who had documentation of access to medical care upon release in the client record.

	Yes	No	N/A
Number of clients with documentation of access to medical care upon release in the client record.	1	5	24
Number of clients in EIS services that were reviewed.	6	6	30
Rate	<b>17%</b>	<b>83%</b>	<b>80%</b>

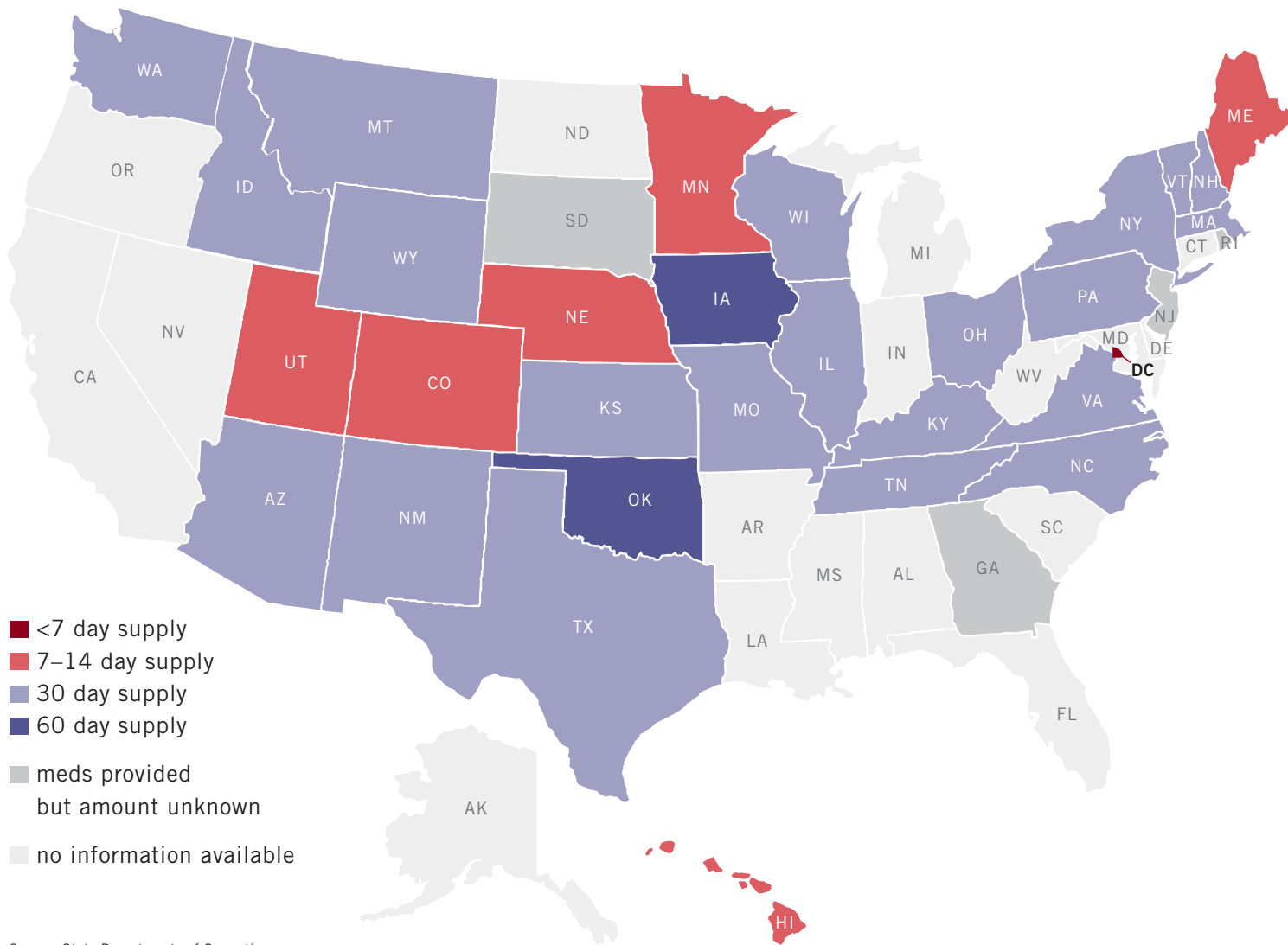
**CONCLUSIONS**

Overall, quality of services is met. Through the chart review: 100% (30) of clients completed an intake assessment and 83% (25) developed a discharge plan. Of the clients enrolled into the EIS program 100% (5) of the newly-diagnosed clients accessing care. Of the files reviewed 97% (29) documented an appropriate referral to medical care upon release and/or other appropriate referrals.



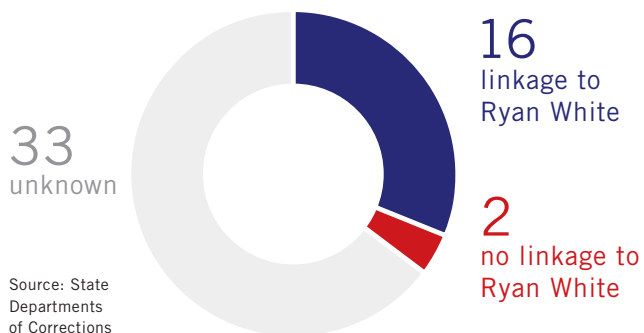
# IMPROVING ACCESS to Care Among Formerly Incarcerated Populations Living with HIV/AIDS under the AIDS Drug Assistance Program

## HIV MEDS (IN DAYS) SUPPLIED TO INMATES UPON RELEASE BY STATE DEPARTMENTS OF CORRECTIONS



Source: State Departments of Corrections

### STATE DEPARTMENTS OF CORRECTION RYAN WHITE LINKAGE



Source: State Departments of Corrections

### INCARCERATION RATES & HIV



Source: The Lancet



## PUBLIC HEALTH

# After Prison, Many People Living With HIV Go Without Treatment

October 9, 2018 · 6:43 PM ET

HEATHER BOERNER



On re-entering society, formerly incarcerated people struggle to get health care and treatment for HIV.

*Kenyon Ellsworth for NPR*

When people living with HIV walk out of prison, they leave with up to a month's worth of HIV medication in their pockets. What they don't necessarily leave with is access to health care or the services that will keep them healthy in the long term.

That is one of the findings of a study published Tuesday in PLoS Medicine. The study was among the first to follow people with HIV from jail or prison back into the community. What they found was that most people — more than half — fell out of care within three years of leaving prison.

But those who did stay in care did well — better than those who returned to prison. They were more likely to have access to health insurance and intensive case management that connected them to support groups, housing, medical care and other services.

The fact that so few had that experience points out how the health care system fails this population, says Dr. Frederick Altice, director of Yale's HIV and Prisons program and the study's co-author. In some states, prisoners are re-enrolled in Medicaid before they're released. In others, it can take weeks or longer.

"[HIV] is a chronic disease," says Altice, who has been treating people with HIV since the early 1980s. "People don't need services six weeks after release. They need them immediately."

Indeed, the study suggests that the post-prison-release period may be key in the fight to eliminate new transmissions of HIV, says Dr. Cato T. Laurencin, a professor at the University of Connecticut and founding editor of the *Journal of Racial and Ethnic Health Disparities*, who was not involved in the study.

"We are now talking about the fact that we believe that we can end new cases of HIV in our lifetime," Laurencin says. "We need to see changes in this setting. And if we're not, that tells us we're not on course."

### **Connecting data to care**

One in 6 people living with HIV is incarcerated at any one time, according to a 2009 study. The good news is that these people often get treatment behind bars. Some studies show 71 percent of people leave prison with HIV that is so well-controlled, it is undetectable with current tests.

The bad news is that once people leave prison, engagement in care and associated HIV viral control drops precipitously, as the study shows.

Indeed, one year after leaving prison, among the 1,094 study participants, only 67.2 percent were still in care. The following year, that number dropped to 51.3 percent. By the end of the third year, only 42.5 percent were still in care.

That's for everyone in the study. When researchers teased out people who were re-incarcerated from those who weren't, retention was higher; 48 percent of the re-incarcerated had care, while 34 percent of those living outside did.

But fully controlled HIV was more common in the people on the outside, the study showed.

"This is the paradox," says Altice. "People who are re-incarcerated didn't have good viral suppression. It's much better for health [to stay out of prison]."

### **Upping the odds of good health**

So what made the difference? When the researchers looked at what differentiated the people who stayed in care from those who didn't, a few things stood out. People with health insurance were more than twice as likely to achieve viral suppression as those without.

Second, those with access to intensive case management — services that can connect people to support groups, drug treatment programs, housing and other services — were twice as likely to still be virally suppressed at the end of three years as those without it. Even those who received only five case management visits were still 69 percent more likely to be virally suppressed at the end of the study.

One limitation of the study, says Dr. David Wohl, co-director of HIV services at the North Carolina Department of Corrections and professor of medicine at the University of North Carolina, is that it's hard to generalize the findings in one state, an urban one like Connecticut, nationally.

"This is a best-case scenario," says Wohl. "The services described in this paper don't exist in North Carolina."

Indeed, like many Northern states, Connecticut expanded Medicaid. And it is among 16 states that have changed their rules to suspend rather than cancel Medicaid when people enter prison. Many states cancel Medicaid enrollment, requiring recently incarcerated people to navigate reapplying. Other states have extremely limited eligibility for Medicaid that might exclude adults without disabilities.

"This also tells me something else," says Altice. "This should be a group targeted for Medicaid expansion."

For the University of Connecticut's Laurencin, those interventions could start to ameliorate the impact of HIV on communities of color. Seventy-eight percent of the people in the study were black or Latino. Only 1 in 3 of them stayed in care. As HIV becomes more concentrated in communities of color while effective treatment and prevention more often go to white, middle-class Americans, this study should signal an "all hands on deck" approach to helping this group of people, says Laurencin.

Kelsey B. Loeliger, Ph.D., a medical student at Yale School of Medicine and lead investigator of the Yale study, concurred. And all the study authors, as well as Wohl, made some variation of this statement as well: Maybe we should look at locking up fewer people.

"Prison reform is needed in so many ways," Loeliger says. "So much is needed across the board for this population. If you come at it from a strict medication-adherence standpoint, that's such a small piece of the puzzle."

## **Getting treatment**

When Bryan C. Jones walked out of an Ohio penitentiary in 2008, he did so with two weeks of HIV medications, a virus that had grown resistant to those drugs, and an immune system that was shutting down.

He was sick and he knew his meds weren't working. So when he boarded the Greyhound back to Cleveland, he left the pills in a trash can in the one-room storefront bus station.

"I knew I was resistant to those meds they gave me," Jones, now 58, says. "And I knew that prison didn't give me anything to further my acceptance of living with HIV. No one [knew] my status. [And] I [wasn't going to] walk around with meds. It just didn't make sense to me."

But Jones was one of the lucky ones. A few weeks after his release, he returned to his old HIV doctor, paid for with Ryan White Care Act funds while he waited for his Medicaid to be approved. His doctor put him back on a regimen that worked a little better. Jones started educating himself on the virus and his options. He started telling people he had HIV.

A case manager connected him to permanent housing.

That "made all the difference," Jones recalls. "It was a place I could freely take my meds and not have to worry about people seeing it in the fridge or having to dig it out of a drawer."

He also stayed in substance abuse treatment. Then a new medication came out that his virus wasn't resistant to. Now, a decade later, Jones is still a regular at his doctor's office. He started bringing HIV support groups to the penitentiary where he had been housed. He runs another support group and advocates for himself and his friends. His HIV is so well-controlled on a newer drug combination that his doctor hasn't been able to detect it in his blood for six years.

In the process, he found a greater purpose.

"See, care can't keep you in care," he says. "You've got to have something else. That's the tie that binds."

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*Heather Boerner is a health and science reporter based in Pittsburgh.*



RESEARCH ARTICLE

# Risk behaviors and HIV care continuum outcomes among criminal justice-involved HIV-infected transgender women and cisgender men: Data from the Seek, Test, Treat, and Retain Harmonization Initiative

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**OPEN ACCESS**

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**Data Availability Statement:** Due to the sensitive nature of data collected from participants, some participants of these studies were prisoners at the time of data collection, and individual data use agreements that exist between study sites and the Data Coordinating Center, data used in this study are not publicly available at this time. These restrictions on data access have been imposed by the University of Washington STTR Data

## Abstract

### Background

Transgender persons are highly victimized, marginalized, disproportionately experience incarceration, and have alarmingly increased rates of HIV infection compared to cis-gender persons. Few studies have examined the HIV care continuum outcomes among transgender women (TW), particularly TW who are involved with the criminal justice (CJ) system.

### Methods

To improve our understanding of HIV care continuum outcomes and risk behaviors among HIV-infected TW who are involved with the CJ system, we analyzed data from the National Institute on Drug Abuse-supported Seek, Test, Treat, Retain (STTR) Data Harmonization Initiative. Baseline data were pooled and analyzed from three U.S. STTR studies to examine HIV risk and care continuum indicators among CJ-involved HIV-infected TW compared to cisgender men (CM), matched on age (within 5 years) and study at a ratio of 1:5.

Coordinating Center. However, data will be made available to qualified persons and data requests may be sent to the University of Washington STTR Data Coordinating Center (contact Erika Enright, email [eenright@uw.edu](mailto:eenright@uw.edu)).

**Funding:** Research presented in this paper is the result of secondary data analysis and was supported by 5U01DA037702 (University of Washington) from the National Institute on Drug Abuse (NIDA). Primary data collection was supported by grants R01DA030781 (Cunningham), R01DA030747 (Beckwith, Kuo), R01DA030796 (Zawitz). In addition, this research was supported by the Providence-Boston Center for AIDS Research [P30AI042853 (Beckwith)], R25DA037190 (Brinkley-Rubinstein), R25DA035692 (Brinkley-Rubinstein), R01DA030762 (Springer), R01DA032100 (Franks), R01DA030770 (Seal). The authors thank the other investigators, the staff, and particularly the participants of the individual STTR studies for their valuable contributions. A full list of participating STTR investigators and institutions can be found at <http://www.sttr-hiv.org>.

**Competing interests:** The authors have declared that no competing interests exist.

## Results

Eighty-eight TW and 440 CM were included in the study. Among matched participants, TW were more likely to report crack and cocaine use compared to CM (40%, 16% respectively,  $p < 0.001$ ); both TW and CM reported high rates of condomless sex (58%, 64%, respectively); TW were more likely than CM to have more than one sexual partner (OR = 2.9, 95% CI: 1.6, 5.2;  $p < 0.001$ ) and have engaged in exchange sex (OR = 3.9, 95% CI: 2.3, 6.6;  $p < 0.001$ ). There were no significant differences between TW and CM in the percentage currently taking ART (52%, 49%, respectively), the mean percent adherence to ART (77% for both groups), and the proportion who achieved viral suppression (61%, 58%, respectively).

## Conclusions

HIV-infected CJ-involved TW and CM had similar use of ART and viral suppression but TW were more likely than matched CM to engage in exchange sex, have multiple sexual partners, and use crack/cocaine. TW and CM had similarly high rates of condomless sex and use of other drugs. TW require tailored risk reduction interventions, however both CJ-involved TW and CM require focused attention to reduce HIV risk and improve HIV continuum of care outcomes.

## Introduction

Transgender persons, defined as those whose current gender identity or expression differs from their assigned sex at birth [1], are a highly victimized, stigmatized, and socio-economically marginalized population [2–9]. They experience significant housing instability and twice the rates of poverty and unemployment compared to the general population of the United States (US) [8]. Transgender persons disproportionately experience incarceration compared to cis-gender persons (persons whose gender identity or expression is consistent with their assigned sex at birth), with 1 in 5 transgender women (TW) reporting at least one previous incarceration [10, 11]. Transgender individuals are also at extreme risk of HIV infection, with 28% of TW testing positive [12]; a rate 34 times higher than the general US adult population [13], with alarmingly high rates of infection among Black TW [13, 14].

In general, there is relatively limited data describing HIV-related risk behaviors among TW. Estimates from one study conducted in Los Angeles County suggested that TW had high rates of substance use (alcohol, marijuana, and methamphetamines), lifetime injection drug use, and recent commercial sex work [14]. Another recent study in the San Francisco, CA area suggested that nearly 32% of TW participants had engaged in condomless receptive anal sex with a casual partner and 23% with commercial sex partners; and condomless receptive anal sex with commercial sex partners was more common among HIV-positive participants compared to HIV-negative participants [15].

Despite their marked vulnerability, relatively few studies have examined indicators of engagement in the HIV care continuum among TW, such as access to antiretroviral treatment (ART), ART adherence, and HIV viral suppression, and no studies have specifically looked at these HIV care indicators among TW who are involved in the criminal justice (CJ) system. This lack of data represents an important knowledge gap given TW are overrepresented in the criminal justice system, despite comprising a small percentage of the adult U.S. population

[16]. In addition, while involved in CJ system, TW are often met with unsafe placement, harassment, assault, and lack of access to health care services [16].

Among studies that have examined HIV care continuum outcomes among TW, results have been varied and sometimes contradictory [9, 17–21], which may be in part due to heterogeneity between study populations and relatively small sample sizes. One study conducted in Florida suggested that TW enter HIV care later than cisgender women and with more advanced disease (i.e., diagnosed with AIDS within 3 months of their HIV diagnosis) [17]. Conversely, two multi-site studies conducted in the U.S. found TW had similar levels of HIV viral suppression when compared to cisgender HIV-infected persons [18, 19]. However, other studies including both multi-site [9] and single site studies conducted in California [20, 21] have found that TW are less likely to achieve viral suppression. Beyond the HIV care continuum, there appear to be disparities related to the quality of HIV care; a large US study found HIV-infected TW reported significantly fewer positive interactions with their healthcare providers compared to cisgender persons [22].

There is a clear and consistent link between social and economic marginalization, violent and sexual victimization, and HIV treatment outcomes among TW [23]. A recent study found housing instability to be associated with poor HIV treatment outcomes among TW [21]. Structural barriers, such as lack of employment and decreased access to food or housing, have also been associated with condomless anal sex and increased victimization among HIV-negative TW [24]. A global meta-analysis found that TW required more intensive supportive services and higher percentages of TW needed basic services such as food and housing assistance compared to HIV-infected cisgender persons [8].

To improve our understanding of HIV care continuum outcomes and risk behaviors among HIV-infected TW who are involved with the CJ system, we analyzed data from the multi-study National Institute on Drug Abuse-supported Seek, Test, Retain (STTR) Data Harmonization Initiative. HIV risk and care continuum indicators among CJ-involved HIV-infected TW were compared to CJ-involved HIV-infected CM.

## Materials and methods

Data for these analyses were collected from three separate studies within the STTR consortium (<https://str-hiv.org/>). The consortium's goal is to integrate data from multiple studies to address research questions related to HIV care continuum outcomes among vulnerable populations that require larger sample sizes than the individual studies provided [25]. The consortium has harmonized data from numerous independent STTR research studies on multiple domains including: demographic information, substance use, criminal justice (CJ) status, ART adherence, HIV risk behaviors (e.g., condomless sex, injection drug use), and HIV care continuum outcomes including HIV viral suppression defined as an HIV viral load (VL) of  $\leq 200$  copies/ml. To conduct these analyses, data were pooled from three STTR studies (Table 1) that met the following criteria: 1) enrolled a minimum of five HIV-infected TW; 2) enrolled HIV-infected CM; 3) collected data on the majority of the domains of interest at the study baseline assessment, and 4) were conducted in the US. All three of the studies focused specifically on CJ-involved participants, including two studies that recruited participants in CJ-based settings (prisons, jails, detention centers, and persons under community supervision, e.g. probation or parole status), and one study that recruited participants after release from jail.

Herein, we briefly summarize the study populations and sites of recruitment. The LINK LA Study and CARE+ Corrections studies have been described in detail elsewhere [26, 27]. The LINK LA study recruited HIV-infected men and TW who were incarcerated in the LA County jail system and who were referred to the transitional case management program. Participants

**Table 1. Participating studies, enrolled populations, study site, number of transgender women study participants.**

Study	Enrolled Population	Study Site	Transgender women (#)	Transgender definition
LINK LA <sup>1</sup>	HIV-infected persons leaving correctional facilities	Los Angeles, CA	52	Self-report of TG or reported gender differed from reported sex assignment at birth.
CARE + Corrections <sup>2</sup>	HIV-infected persons in jail or recently released from jail	Washington, D. C.	20	Self-report of TG or reported gender differed from reported sex assignment at birth.
STT Jail <sup>3</sup>	HIV-infected persons leaving correctional facilities	Chicago, IL	16	Self-report of TG

<sup>1</sup> Effectiveness of Peer Navigation to Link Released HIV+ Jail Inmates to HIV Care (LINK LA).

<sup>2</sup> CARE+ Corrections: Technology for Jail HIV/HCV Testing, Linkage, and Care (CARE+ Corrections).

<sup>3</sup> Seek, Test, Treat: An Integrated Jail-Prison-Community Model for Illinois (STT Jail).

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were 18 years of age or older, English or Spanish speaking, and eligible for ART. LINK LA enrolled 356 participants from 2012–2016. The CARE+ Corrections study recruited HIV-infected persons who were 18 years or age or older, English speaking, and who were incarcerated in Washington D.C. Department of Corrections facilities or recently incarcerated (within the previous six months). CARE+ Corrections enrolled 112 participants between 2013–2015. The STT Jail study recruited HIV-infected persons who were 18 years of age or older, English-speaking, and who were anticipated to be released from the Cook County Jail within six months. STT Jail enrolled 460 participants between 2013–2016.

Information on age, race and ethnicity, education, homelessness, health insurance, ART adherence measured through the Visual Analogue Scale (VAS) [28], and use of alcohol and illicit drugs was collected during the baseline assessments for each study. Except for age, race and ethnicity, and education, participants were asked to report risk behaviors and engagement in HIV treatment during a specific reference period which varied by study and in some cases by behavior within study (i.e., 30, 90, or 180 days prior to incarceration for current detainees or those recently released from incarceration). In studies where the baseline survey was administered in the community, CJ supervision status was collected by self-report or from CJ administrative records. Risk behavior questionnaires elicited information regarding participants’ sexual and drug using risk behaviors during each study’s reference period. Specifically, participants were asked about their engagement in vaginal or anal intercourse, condom use, number of sexual partners, and exchange sex (defined as having sex to receive money, alcohol, drugs, or other things). Participants were asked about any use of alcohol, binge alcohol, marijuana, crack/cocaine, opioids, stimulants, other substances, multiple substances; hazardous drinking was assessed using the AUDIT-C [29]. HIV VL was assessed through laboratory testing performed by the study or review of recent medical records.

Using a risk set sampling approach, all eligible TW from the three studies were selected and matched at a ratio of 1:5 to CM participants on age (within 5 years) and study. While each of the five CM participants matched to a TW participant were unique individuals, CM participants were eligible to be randomly sampled as controls for multiple TW for whom they met the matching criteria. A total of 88 TW and 440 CM were included in the study. Conditional logistic regression was used to test for differences between matched TW and CM participants in risk behaviors and HIV care outcomes represented as binary variables. Differences in characteristics represented as continuous variables were tested using generalized linear models with robust standard errors. *P*-values < 0.05 were considered statistically significant.

The studies were approved by the following institutional review boards: The University of California, Los Angeles (LINK LA), Los Angeles County Department of Public Health (LINK LA), George Washington University (CARE+ Corrections), The Miriam Hospital (CARE + Corrections), University of Illinois at Chicago (STT Jail), and the Cook County Health and Hospitals System (STT Jail). Additional protections were provided by the Office of Human Research Protections at the Department of Health and Human Services, and Certificates of Confidentiality were obtained.

## Results

[Table 2](#) displays demographic characteristics of study participants, stratified by study and gender. Overall, the mean age across groups was 35 years ( $\pm 10$ ), 53% were Black, and 23% were Hispanic. A slightly higher proportion of TW reported being homeless compared to CM (49% and 41% respectively), while similar proportions of TW (43%) and CM (39%) reported not having health insurance.

As outlined in [Table 3](#), any alcohol use and binge drinking were common across all studies and groups, with more than one-half of all respondents reporting any alcohol use. Across individual studies, between 25% and 69% reported binge drinking. From the two studies that measured hazardous drinking, the overall proportion of TW and CM participants classified as hazardous drinkers was 42% and 40%, respectively. Overall, marijuana and stimulant use was common, although the range of use of these substances varied greatly across studies. For crack and cocaine use, the proportion of use also varied across studies, but overall, TW were more likely to report crack and cocaine use compared to CM (40% and 16% respectively,  $p < 0.001$ ). Opioid use across all studies and among TW and CM was relatively low compared to the other substances (13% and 15%, respectively). TW were more likely than CM to use multiple substances defined as using  $\geq 2$  substances (including alcohol) (74% and 62% respectively,  $p = 0.04$ ).

[Table 4](#) displays sexual risk behaviors reported by study participants. Both TW and CM reported high rates of condomless sex (58% and 64%, respectively;  $p = 0.37$ ). TW were significantly more likely than CM to have more than one sexual partner (OR = 2.9, 95% CI: 1.6, 5.2;  $p < 0.001$ ) and have engaged in exchange sex (OR = 3.9, 95% CI: 2.3, 6.6;  $p < 0.001$ ).

[Table 5](#) displays HIV care continuum outcomes reported by study participants. Overall, there was no significant difference between TW and CM in the percentage currently taking ART, with 52% of TW and 49% of CM on ART (OR = 1.1; 95% CI: 0.7–1.8,  $p = 0.6$ ). Similarly, there were no significant differences between TW and CM in the mean percent adherence to ART (77% for both groups), the proportion who achieved viral suppression (61% and 58%, respectively), or the proportion who had CD4 counts  $\leq 200$  compared to CM (OR = 0.4; 95% CI: 0.1–2.1,  $p = 0.30$ ).

## Discussion

This study among HIV-infected persons in the CJ system found no significant difference between TW and CM in the use of ART, reported adherence to ART, or with achieving viral suppression. Approximately one-half of our study population reported being on ART at the time of baseline data collection and close to 60% were found to have viral suppression. The proportion receiving ART was similar to the results among jailed persons in a recent systematic review that indicated 51% of persons were on ART during incarceration which decreased to 29% after release, and 40% achieved viral suppression during incarceration which decreased to 21% after release [30]. One explanation for our findings may be that both TW and CM were better able to access HIV care and treatment during periods of incarceration compared to when residing in the community, thus attenuating any potential differences that may exist outside of



Table 2. Demographic characteristics of study participants, comparing transgender women and cisgender men.

	STTR Study							
	LINK LA		CARE + Corrections		STT Jail		Total	
	Los Angeles, CA		Washington D.C.		Chicago, IL		TW	CM
	TW	CM	TW	CM	TW	CM		
<b>N</b>	52	260	20	100	16	80	88	440
<b>Age, years</b>	36 ± 10	36 ± 10	35 ± 9	34 ± 10	32 ± 11	33 ± 11	35 ± 10	35 ± 10
<b>Age, years</b>	36 ± 10		34 ± 10		32 ± 11		35 ± 10	
<b>Race/ Ethnicity (%)</b>								
Black	38	30	85	91	94	75	59	52
Hispanic	35	35	0	1	6	14	22	23
White	4	25	5	3	0	9	3	17
Other <sup>1</sup>	23	10	10	5	0	2	16	8
<b>Education (%)</b>								
< High School	52	40	35	26	31	40	44	37
High school	13	16	45	56	38	33	25	28
>High school	35	43	20	18	31	27	31	34
Unknown	0	1	0	0	0	0	0	1
<b>Homeless (%)</b>								
No	31	45	—	—	56	50	37 <sup>2</sup>	46 <sup>2</sup>
Yes	69	55	—	—	44	50	63 <sup>2</sup>	54 <sup>2</sup>
Not collected	0	0	100	100	0	0	—	—
<b>Health Insurance (%)</b>								
Uninsured	60	50	20	10	19	37	43	39
Insured	38	48	80	90	69	58	54	59
Unknown	2	2	0	0	12	5	3	2

<sup>1</sup>Includes participants reporting race as Asian, Native American/Alaskan Native, Pacific Islander, having 2 or more races.

<sup>2</sup>Percentages are calculated as percent of total individuals with data collected.

Abbreviations: TW-transgender women; CM-cisgender males.

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the correctional setting. We were not able to assess changes in ART use or viral suppression following release from correctional facilities in this study, but other studies have demonstrated decreased ART use and consequent viral rebound during community re-entry [30–33].

In our study, TW were more likely to engage in several HIV transmission behaviors compared to age-matched CM from the same studies. While both TW and CM reported high rates of condomless sex, TW were more likely than CM to have multiple sexual partners and to engage in exchange sex. Similarly, high rates of substance use were reported among both TW and CM, but the proportion of TW using crack/cocaine was more than twice as high as that of CM. Despite TW reporting higher rates of engagement in HIV transmission behaviors, both populations had similarly sub-optimal HIV continuum of care outcomes including ART use, ART adherence, and viral suppression. These findings suggest that interventions to improve HIV care engagement and viral suppression in both TW and CM are needed, but that TW would especially benefit from gender-tailored interventions that address their unique vulnerabilities and risk behaviors.

In both TW and CM, rates of condom use and ART were low while rates of substance use were high. Substance use disorders have been linked to both high risk HIV transmission behaviors and poor retention in HIV care [34, 35], including among TW [36, 37]. The sub-optimal outcomes in this sample of CJ-involved TW and CM are particularly concerning

**Table 3. Substance use during reference period<sup>1</sup>, comparing transgender women and cisgender men.**

	Los Angeles		Washington D.C.		Chicago		Total		p-value
	TW	CM	TW	CM	TW	CM	TW	CM	
N	52	260	20	100	16	80	88	440	
<b>Any use (%)</b>									
Alcohol	65	51	75	80	81	70	71	61	0.1
Binge Alcohol	31	25	55	58	69	41	43	35	0.1
Marijuana	46	62	40	32	81	53	51	53	0.7
Crack/ cocaine	33	10	45	22	56	31	40	16	<0.001
Opioids	14	12	5	16	19	25	13	15	0.5
Stimulants	58	67	20	4	31	16	44	44	0.9
Other Substance	4	9	25	13	25	15	13	11	0.7
Multiple Substances <sup>2</sup>	77	68	55	46	88	64	74	62	0.04
No Substances	10	12	0	15	0	15	6	13	0.06
<b>Hazardous Drinking</b>									
AUDIT-C score	—	—	4.0 ± 4.1	5.0 ± 4.2	5.8 ± 4.4	3.6 ± 4.0	4.8 ± 4.3	4.4 ± 4.2	0.6
AUDIT-C category (%)									
Non-drinker	—	—	25	20	19	35	22 <sup>3</sup>	27 <sup>3</sup>	
Non-hazardous drinker	—	—	45	33	25	33	36 <sup>3</sup>	33 <sup>3</sup>	
Hazardous drinker	—	—	30	47	56	32	42 <sup>3</sup>	40 <sup>3</sup>	0.84

<sup>1</sup>Alcohol reference periods differed across studies: 30 days: LINK LA; 180 days: STT Jail; 1 year: CARE+ Corrections.

Illicit substance reference periods differed across studies: 30 days: LINK LA; 90 days: CARE+ Corrections; 180 days: STT Illinois.

<sup>2</sup> Multiple substance use was defined as using ≥ 2 substances (including alcohol).

<sup>3</sup> Percentages are calculated as percent of total individuals with data collected.

Abbreviations: TW-transgender women; CM-cisgender males.

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given that incarceration is often viewed as an opportunity to re-engage people living with HIV in care [38, 39]. These findings speak to the need for innovative methods that support retention in HIV care and HIV prevention efforts, including the expansion of case management services, ART adherence counseling, and comprehensive substance abuse treatment services.

**Table 4. HIV risk behaviors during reference period<sup>1</sup>, comparing transgender women and cisgender men.**

	Los Angeles		Washington D.C.		Chicago		Total		OR (95% CI)	p-value
	TW	CM	TW	CM	TW	CM	TW	CM		
N	52	260	20	100	16	80	88	440		
>1 sex partner (%)	45	24	—	—	67	36	48 <sup>2</sup>	26 <sup>2</sup>	2.9 (1.6–5.2)	<0.001
Condomless sex (%)	54	63	78	82	44	39	58 <sup>3</sup>	64 <sup>3</sup>	0.8 (0.5–1.3)	0.37
Exchange sex (%)	46	22	65	15	—	—	51 <sup>4</sup>	20 <sup>4</sup>	3.9 (2.3–6.6)	<0.001

<sup>1</sup>Reference periods differed across studies: 90 days: CARE+ Corrections, STT Jail; 180 days: LINK LA.

<sup>2</sup>Refused and “Don’t know” responses were set to missing (LINK LA TW: n = 1; STT Jail TW: n = 1; STT Jail CM: n = 1); percentages are calculated as percent of total non-missing responses.

<sup>3</sup>Refused and “Don’t know” responses were set to missing (LINK LA TW: n = 2; LINK LA CM: n = 17; STT Jail TW: n = 1, STT Jail CM: n = 3); percentages are calculated as percent of total non-missing responses.

<sup>4</sup> Percentages are calculated as percent of total individuals with data collected.

Abbreviations: TW-transgender women; CM-cisgender males; OR-odds ratio; CI-confidence interval.

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Table 5. HIV care continuum outcomes during reference period<sup>1</sup>, comparing transgender women and cisgender men.

	Los Angeles		Washington D.C.		Chicago		Total		OR/ $\beta$ (95% CI)	p-value
	TW	CM	TW	CM	TW	CM	TW	CM		
N	52	260	20	100	16	80	88	440		
Current ART (%)	40	47	70	47	69	57	52	49	OR = 1.1 (0.7–1.8)	0.57
% ART adherence	67 $\pm$ 32	79 $\pm$ 27	90 $\pm$ 18	70 $\pm$ 25	—	—	77 $\pm$ 29	77 $\pm$ 27	$\beta$ = 0.3 (-10.5–11.1)	0.96
VL <sup>2</sup> $\leq$ 200 copies/ml (%)	56	62	80	57	50	39	61 <sup>3</sup>	58 <sup>3</sup>	OR = 1.1 (0.7–1.9)	0.61
CD4+ cell count <sup>2</sup> $\leq$ 200 (%)	—	—	5	9	10	25	7	15	OR = 0.4 (0.1–2.1)	0.30

<sup>1</sup>ART reference periods differed across studies: CARE+ Corrections, LINK LA: 30 days prior to incarceration; STT Jail (taking ART only): 7 days prior to arrest.

<sup>2</sup>VL and CD4 measurements were from within 30 days of baseline interview.

<sup>3</sup>Viral load measures were missing on some participants (CARE+ Corrections CM n = 3; LINK LA CM: n = 8; STT Jail TW: n = 6; STT Jail CM: n = 28); percentages are calculated as percent of total non-missing responses.

Abbreviations: TW-transgender women; CM-cisgender males; OR-odds ratio;  $\beta$ -beta; CI-confidence interval; ART-antiretroviral treatment; VL-viral load; ml-milliliter.

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The TW in this study were uniquely vulnerable due to higher rates of crack/cocaine use than CM. There are no approved pharmacotherapies for cocaine use disorders; cognitive behavioral therapy is currently the only approved management option and is often unavailable to socially disenfranchised populations such as TW. In addition, high rates of exchange sex and cocaine use in TW may be intertwined, where TW may be more likely to find themselves needing to engage in exchange sex to support their addiction. Approximately 40% of TW and CM in this study reported stimulant use. Previously published studies of female sex workers and men who have sex with men (MSM) have revealed patterns of stimulant use during sexual encounters were attributed to a number of factors, including sexual enhancement, increased energy levels, and as a coping mechanism during exchange sex [40, 41]. To reduce risk behaviors and improve HIV continuum of care outcomes among TW and CM, new approaches to treat cocaine and stimulant use disorders are needed and the development of new behavioral and pharmacological interventions must be a research priority. Importantly, TW require substance abuse treatment programs that are non-judgmental, inclusive of their gender and sexual orientation, and that address other co-occurring needs such as lack of social support, stigma, and frequent history of abuse and harassment [42].

The differences in sexual risk behaviors and substance use patterns between TW and CM suggest that there may be opportunities to reduce transmission of HIV and improve treatment outcomes through gender-tailored interventions [43]. While condom use was similar between populations (36–42%), TW were more likely to have multiple sexual partners, which creates a higher risk of HIV transmission when only 42% of HIV-infected TW reported consistently using condoms. Thus, it is particularly important to prioritize interventions that can improve condom use as well as optimize ART adherence and viral suppression in TW [44]. Relatedly, TW were almost 4 times more likely to engage in exchange sex. TW have historically been socially marginalized and stigmatized in ways that may increase their likelihood of engaging in commercial sex work [7, 23, 45]. While TW appear to be accessing HIV care at rates similar to CM, their engagement in exchange sex indicates a social vulnerability that can influence their continued access to care and ability to negotiate condom use [23, 46]. Future interventions targeting TW should acknowledge the contextual factors relevant to TW that can affect HIV risk behavior such as gender-based power imbalances, stigma, increased risk of interpersonal or



sexual violence, financial vulnerability, and the work environment (e.g. public vs. indoor) when engaging in exchange sex [47–52].

There were limitations to this study. Two of the three STTR studies included recruited persons inside correctional facilities, which may have influenced HIV treatment outcomes since these persons may have better access to HIV treatment than persons enrolled in the community. This study was a secondary analysis of cross-sectional data collected through the STTR consortium, hence, the three studies included were heterogeneous in terms of study design, eligibility criteria, geographic location, and the reference periods used for assessing baseline substance use and sexual risk behaviors. While this may limit the robustness of our findings, the geographic heterogeneity provided a more nationally representative sample than single-site studies. Furthermore, the use of matching in the analysis ensured that comparisons were made between TW and CM within the same study, thus between-study differences cannot account for the observed differences between TW and CM risk behaviors. Including cisgender women as a comparison group in the analysis would have enhanced the study, but not all of the studies included in this analysis recruited cisgender women. Similarly, not all of the studies collected information on sexual orientation, thus we were unable to identify MSM. If the majority of CM in this study were MSM, a group that also experiences high rates of stigma and substance use, this may have attenuated differences between the TW and CM than may have been observed if the TW were compared to non-MSM HIV-infected men.

In conclusion, we found that CJ-involved HIV-infected TW, as compared to CJ-involved HIV-infected CM, had similar HIV continuum of care outcomes but TW were more likely to engage in exchange sex, have multiple sexual partners, and use crack/cocaine or multiple substances. Nevertheless, TW and CM had similarly high rates of condomless sex and use of illicit drugs and other substances. These results indicate that TW require population-specific interventions that address specific HIV transmission behaviors and are also sensitive to the unique barriers to care and psychosocial vulnerabilities that many TW experience. In general, though, interventions are needed for both CM and TW that target condomless sex, substance use behaviors, and engagement in HIV care to improve HIV-related outcomes.

## Author Contributions

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