

Gender Differences in Hepatitis C Care Outcomes in the New York City Jail System, 2019–2023: A Retrospective Cohort Study

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Background. Significant gaps in hepatitis C (HCV) care outcomes exist between women and men experiencing incarceration, yet limited data examining these differences exist in the literature. Our objective was to examine HCV care outcomes among women and men in a large urban jail.

Methods. A retrospective cohort analysis was completed of all persons incarcerated in the New York City (NYC) jail system who completed a medical intake between 1 October 2019 and 31 December 2023. Logistic regression models were used to calculate odds ratios for women versus men at each HCV care cascade step, including on-site HCV treatment initiation. Jail length of stay, history of mental health needs, homelessness, history of substance use disorders, history of HIV, and number of prior incarcerations in the last year were incorporated into the larger model.

Results. Of 71 100 individuals, 7.1% were women. Women had higher rates than men of HIV (3.7% vs 2.8%), mental health needs (55.1% vs 32.0%), select substance use disorders (58.5% vs 45.8%), homelessness (23.5% vs 19.5%) ($P < .0001$), and shorter jail lengths of stay (19 days vs 30 days, $P < .0001$). Of those with active HCV seen by an HCV clinician, women had about half the odds of on-site treatment initiation of men (multivariate adjusted odds ratios [AOR] = 0.561, 95% CI = .335–.925).

Conclusions. Women were less likely to initiate jail-based HCV treatment compared to men despite similar infection rates and greater clinical engagement. Gender-focused strategies for HCV care in carceral settings are critical for achieving equitable HCV elimination.

Keywords. hepatitis C virus; jail; prison; incarceration; women.

Direct-acting antivirals (DAAs) have transformed the hepatitis C (HCV) treatment landscape. Therapeutic advances, however, make up only one aspect of the ongoing effort to reach HCV elimination. The institutional and clinical infrastructures serving the most vulnerable and undertreated for HCV are needed to enable equitable and widespread distribution of DAAs. Today, an estimated 4.6 million people are living with chronic HCV in the United States [1], and large proportions of key groups—notably, women—remain undertreated.

Studies have shown that women may be more likely to acquire HCV but less likely to receive treatment [2–7]. In a large

meta-analysis, HCV incidence among people who inject drugs was 36% higher for women than for men [6]. Among participants in opioid agonist treatment programs from 7 international cohorts, women had a 2-fold higher hazard of HCV acquisition compared with men [7]. Women living with untreated HCV have higher rates of injection drug use and mental health diagnoses than men [5, 8] and face greater risk of sustaining liver injury from HCV and comorbid alcohol use [9]. Nevertheless, women, especially high-risk groups with coexistent medical and psychosocial conditions, consistently receive HCV treatment at disproportionately low levels [3–5]. These data suggest women are being left behind.

Disparities in HCV-related outcomes between women and men suggest a critical need for a “gender lens” in HCV elimination to ensure interventions and strategies are effective for all [10]. In carceral settings, which have been studied as both a risk factor for HCV [11, 12] and a key point of intervention [12–16], examining outcomes through a gender lens is particularly crucial for 3 reasons. First, the carceral environment is central to current HCV elimination strategies [13], and any gaps in carceral healthcare could lead to even greater disparities in broader community-level transmission. Second, women experience shorter lengths of stay than men in carceral settings, which may hinder HCV treatment and contribute to

Received 23 March 2026; accepted 01 August 2026; published online 22 September 2026

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Clinical Infectious Diseases[®]

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https://doi.org/10.1093/cid/ciag480

gender-specific gaps in treatment [17]. Third, women experiencing incarceration face a disproportionate burden of comorbidities—higher rates than their male counterparts of psychiatric disorders, substance use, homelessness, and other chronic medical conditions [18, 19]—which may exacerbate existing disparities in healthcare access and uptake. Ultimately, carceral settings represent a unique opportunity for reaching and treating underserved women living with HCV, and a critical juncture in addressing women-specific disparities. Gender-focused strategies for HCV care applied to carceral settings are therefore paramount to equitable and complete HCV elimination.

Numerous studies have shown overrepresentation of active or past HCV infection in women experiencing incarceration compared with men [8, 20–22]; however, the data do not address how rates of treatment and progress through the HCV care cascade may differ across gender in these settings. A greater understanding of HCV treatment outcomes among women experiencing incarceration is vital to identifying and addressing gender disparities and ensuring equitable access to care in one of the most critical arenas in the fight to eliminate HCV. As such, the objectives of this study were to assess progress through the HCV care cascade among women and men, and examine differences in HCV treatment uptake for women compared with men in the New York City (NYC) jail system.

METHODS

Cohort Selection

We conducted a retrospective cohort analysis of all persons in the NYC jail system who completed a medical intake between 1 October 2019 and 31 December 2023. Analysis was performed on a per-admission basis. Duplicated admissions were identified and removed, and gender was extracted from the Correctional Health Services (CHS) electronic health record (EHR).

Setting

NYC Health + Hospitals/Correctional Health Services (CHS), a division of the city's public hospital system, is the direct provider of comprehensive healthcare and re-entry services to individuals incarcerated in the NYC jail system. CHS has provided expanded access to HCV treatment in the NYC jails for over a decade. Patients enrolled in HCV treatment receive discharge planning, medications at discharge, and connections to community care. During our study period, the jail system included between 7 and 11 jail facilities, up to 10 for men and 1 for women. In addition to treatment, CHS offered universal opt-out point-of-care HCV testing upon admission to every individual admitted to the jail system during our study period. A positive HCV antibody result or HCV self-report would be followed by offer of an HCV RNA test via phlebotomy. Patients with detectable HCV RNA results were referred for on-site

treatment assessment by a CHS physician able to treat HCV infection. Treatment was initiated on-site if the estimated length of stay (LOS) was sufficient to complete treatment in jail, or a re-entry plan was established that enabled treatment completion post-discharge, or immediate treatment start was necessitated by medical urgency (ie, advanced liver disease).

Care Cascade

We constructed an HCV care cascade comprising (1) HCV screening, (2) HCV confirmatory testing, (3) detection of HCV viremia, (4) being seen by a jail-based HCV clinician, (5) on-site HCV treatment initiation, (6) on-site HCV treatment completion, (7) on-site testing for sustained virologic response at 12 weeks (SVR12), and (8) confirmation of SVR12 (achievement of cure). Care cascade outcomes were stratified by documented gender. For each step, the denominator was defined as the preceding step to reflect the sequential nature of these processes in clinical practice.

Patients were “screened for HCV” on a given admission if they received a rapid or laboratory test for HCV antibodies, HCV RNA, or HCV genotype that returned a valid result, or self-reported a positive history of HCV, at any point during that admission. Patients “had a confirmatory test” if they received an HCV RNA or genotype test. Patients were considered “detectable” who had a detectable result for HCV viremia or genotype. Patients were “seen by a clinician” who had an in-person visit with a CHS physician who treats HCV. “Initiated treatment” referred to on-site initiation of HCV treatment using DAA therapy.

SVR12 tests to confirm posttreatment cure were defined as the earliest HCV RNA test present in the EHR done ≥ 64 days and ≤ 6 months after completion of treatment. The minimum and maximum thresholds were chosen to reflect a practical window validated by real-world treatment outcome studies that aims to minimize the potential limitations of the strict SVR 12 definition by allowing for a realistic measure of cure rate while limiting the risk of false-positives due to reinfection [23, 24].

Data Sources

Data were collected through November 2024 to ensure sufficient time for cascade steps to occur for all patients in the cohort.

Demographic variables examined included race/ethnicity, age at admission, education, and housing status. Race and ethnicity were combined into 4 mutually exclusive categories: non-Hispanic Black, non-Hispanic White, Latinx/Hispanic, and Other/Unknown. Housing status was captured by patient self-report during medical intake.

Health-related variables included HIV infection (HIV-1 and/or HIV-2), history of mental health needs while incarcerated, history of serious mental illness (SMI), and alcohol,

opioid, and cocaine use disorders. HIV infection and substance use disorders (SUD) were based on the presence of an International Statistical Classification of Diseases and Related Health Problems (ICD) 9/10 diagnosis code. SMI was specified by CHS to include (a) schizophrenia spectrum and other psychotic disorders, (b) bipolar and related disorders, (c) depressive disorders, or (d) posttraumatic stress disorder (PTSD), as defined by the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5). These exclude diagnoses resulting from a substance use or medical condition.

Incarceration variables included jail LOS and number of incarcerations in the NYC jail system during the year prior to a given admission. When calculating LOS, each date was counted as a separate day.

Statistical Analysis

Descriptive statistics, Mann–Whitney *U* tests, and chi-squared analyses were used to examine differences across genders for demographic, health, and incarceration variables. Multiple logistic regression models were used to calculate unadjusted and adjusted odds ratios (AOR) and 95% confidence intervals (95% CI) for women versus men (reference group) at each cascade step. The first AOR adjusted only for LOS, which has previously been cited as the primary predictor of treatment initiation [14, 25]. LOS was treated as continuous rather than categorical because no LOS threshold was used during our study period to preclude treatment initiation. The larger model incorporated predictors we hypothesized may impact progress through various steps of the cascade, including LOS, history of mental health needs, homelessness, history of select SUDs (defined as alcohol use disorder, cocaine use disorder, or opioid use disorder), HIV (HIV-1 and/or HIV-2), and number of prior incarcerations in the last year. Statistical significance was defined as a 2-sided *P* value of <.05.

Oversight

The study protocol was reviewed by a third-party institutional review board (BRANY, Lake Success, NY) and approved under BRANY File #23-PRS-746-419(HHC). A full waiver of informed consent was granted due to satisfying the waiver criteria set forth in 45 CFR 46.116(f).

STROBE Statement

We followed the STrengthening the Reporting of OBservational studies in Epidemiology (STROBE) guidelines for reporting this retrospective cohort study.

RESULTS

Cohort Characteristics

Overall Cohort Characteristics

Our cohort included a total of 72 331 patients who completed a medical intake between 1 October 2019 and 31 December 2023. We excluded individuals whose documented gender identity

was missing or documented inconsistently ($N = 1231$), for a final cohort size of 71 100. The cohort had a median age of 34 (interquartile range [IQR] 27–43), and 7.1% were women (Table 1). The cohort was predominantly non-Hispanic Black (54.4%) and Hispanic (28.1%), with the remainder being non-Hispanic White (7.5%) and all other races and ethnicities (9.9%); 2.8% of the cohort were living with HIV; 33.6% had a history of mental health needs, 14.3% of SMI, and 46.7% of select SUDs; 19.8% reported being homeless prior to admission. Median LOS in jail was 29 days (IQR 6–118), and median number of jail admissions per patient within the year prior to a given admission was 1 (IQR 0–2).

An overall total of 81 282 patients were admitted during the study period, of whom 8951 (11.0%) did not complete a medical intake. After applying the same exclusion criteria to this group, the proportion of women to men among those who did not complete medical intake did not differ significantly from the proportion found in our study cohort, who completed medical intake ($P = .65$).

Cohort Characteristics by Gender

Women, compared with men, had significantly higher rates of HIV (3.7% vs 2.8%), history of mental health needs (55.1% vs 32.0%), history of SMI (21.0% vs 13.8%), history of select SUDs (58.5% vs 45.8%), and homelessness (23.5% vs 19.5%) ($P < .0001$) (Table 1). Women had significantly shorter median lengths of stay in jail than men (19 days vs 30 days, $P < .0001$).

Care Cascade

Overall Care Cascade Outcomes

Of the overall cohort ($N = 71\ 100$), 23 076 (32.5%) patients were screened for HCV (Figure 1A); 2523 (10.9%) of those screened received a confirmatory HCV test, of whom 1221 (48.4%) were found to have active HCV infection. Six hundred and sixty-four (54.4%) of those with active infection were seen by an HCV clinician, and 338 (50.9%) of those seen by a clinician initiated HCV treatment on-site (27.7% of those with active infection); 213 (63.0%) completed treatment on-site, 74 (34.7%) of these completed an SVR12 test on-site, and 73 (98.6%) of these had undetectable SVR12 results (achieved cure).

Care Cascade Outcomes by Gender

Rates of progression to each step of the HCV care cascade differed significantly by gender at a number of steps (Table 1, Figure 1B and 1C).

In unadjusted models, women had significantly greater odds than men of being screened for HCV (odds ratio [OR] = 20.1, 95% confidence interval [CI] = 18.4–22.0, $P < .0001$) and lower odds of receiving confirmatory testing (OR = 0.843, 95% CI = .756–.940, $P = .0022$) (Figure 2, Table 2). Men and women had similar odds of being detectable for active HCV ($P = .23$). Of those with active HCV, women had lower odds of being seen

Table 1. Cohort Characteristics, Overall and Stratified by Gender, Patients in NYC Jails October 2019–December 2023

	Total ^a		Men		Women		P value ^b	
	n = 71 100		n = 66 021		n = 5079			
	No.	%	No.	%	No.	%		
Demographics								
Race/ethnicity							<.0001	****
Non-Hispanic Black	38 713	54.4%	36 217	54.9%	2496	49.1%		
Latinx/Hispanic	19 972	28.1%	18 650	28.2%	1322	26.0%		
Non-Hispanic White	5363	7.5%	4586	6.9%	777	15.3%		
Other	7052	9.9%	6568	9.9%	484	9.5%		
Age at admission (years)								
Mean (SD)	35.7 (11.6)		35.7 (11.7)		35.6 (10.6)		.060	ns
Median (IQR)	34 (27–43)		34 (27–43)		34 (28–42)			
Education								
Less than a high school diploma/GED	29 454	41.4%	27 459	41.6%	1995	39.3%	<.0001	****
Has a high school diploma/GED	34 193	48.1%	31 904	48.3%	2289	45.1%		
More than a high school diploma/GED	5414	7.6%	4796	7.3%	618	12.2%		
No data	2039	2.9%	1862	2.8%	177	3.5%		
Homeless ^c	14 091	19.8%	12 898	19.5%	1193	23.5%	<.0001	****
Health								
HIV	2006	2.8%	1816	2.8%	190	3.7%	<.0001	****
History of mental health needs	23 902	33.6%	21 105	32.0%	2797	55.1%	<.0001	****
History of serious mental illness (SMI) ^d	10 192	14.3%	9123	13.8%	1069	21.0%	<.0001	****
Alcohol use disorder	18 210	25.6%	16 803	25.5%	1407	27.7%	.0004	***
Opioid use disorder	14 529	20.4%	13 217	20.0%	1312	25.8%	<.0001	****
Cocaine use disorder	19 465	27.4%	17 230	26.1%	2235	44.0%	<.0001	****
Any of above substance use disorders ^e	33 221	46.7%	30 250	45.8%	2971	58.5%	<.0001	****
Incarceration								
Number of prior incarcerations in last year								
Median (IQR)	0 (0–1)		0 (0–1)		0 (0–1)		<.0001	****
Range (min, max)	12 (0, 12)		11 (0, 11)		12 (0, 12)			
Jail length of stay in days, median (IQR) ^{f,g}	29 (6–118)		30 (6–120)		19 (5–76)		<.0001	****
HCV care cascade ^h								
Screened for HCV ⁱ	23 076	32.5%	18 570	28.1%	4506	88.7%	<.0001	****
Had confirmatory test ⁱ	2523	10.9%	2088	11.2%	435	9.7%	.0024	**
Detectable	1221	48.4%	999	47.8%	222	51.0%	.25	ns
Seen by a clinician ^k	664	54.4%	557	55.8%	107	48.2%	.049	*
Initiated treatment	338	50.9%	304	54.6%	34	31.8%	<.0001	****
Completed treatment	213	63.0%	195	64.1%	18	52.9%	.27	ns
Completed SVR12 ^l	74	34.7%	67	34.4%	7	38.9%	.90	ns
Undetectable SVR12 ^l	73	98.6%	66	98.5%	7	100.0%	1.0	ns

* $P < .05$; ** $P < .01$; *** $P < .001$; **** $P < .0001$; ns, not significant.Abbreviations: %, column percentage; No., number. Bolded cells indicate significance at $P < .05$.^aAnalysis is at the incarceration, not person level.^bChi-Square testing was used for categorical variables, and Mann-Whitney U testing was used for continuous variables. Comparison was between gender groups.^cPatient indicated being homeless prior to incarceration through self-report during medical intake.^dPatient has history of SMI diagnosis during incarceration. CHS defines SMI to include (a) schizophrenia spectrum and other psychotic disorders, (b) bipolar and related disorders, (c) depressive disorders, or (d) posttraumatic stress disorder (PTSD), as defined by the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5). These exclude diagnoses resulting from a substance use or medical condition.^eDefined as any one or multiple of alcohol use disorder, opioid use disorder, and cocaine use disorder.^fEach date was counted as a separate day.^gDoes not include individuals incarcerated at time of data analysis ($n = 1473$).^hPercentages for each step were based on prior step.ⁱHCV screening was defined as having an HCV antibody, RNA, or genotype test, or self-reporting HCV.^jHCV confirmatory test was defined as having an HCV RNA or genotype test.^kPatients were considered to be seen by a clinician and all prior cascade steps if continuing treatment initiated in the community or initiating treatment based on sufficiently recent labs and visits from a prior admission.^lSVR12 test to confirm cure were defined as an HCV RNA test ≥ 64 d and ≤ 6 m after treatment completion.

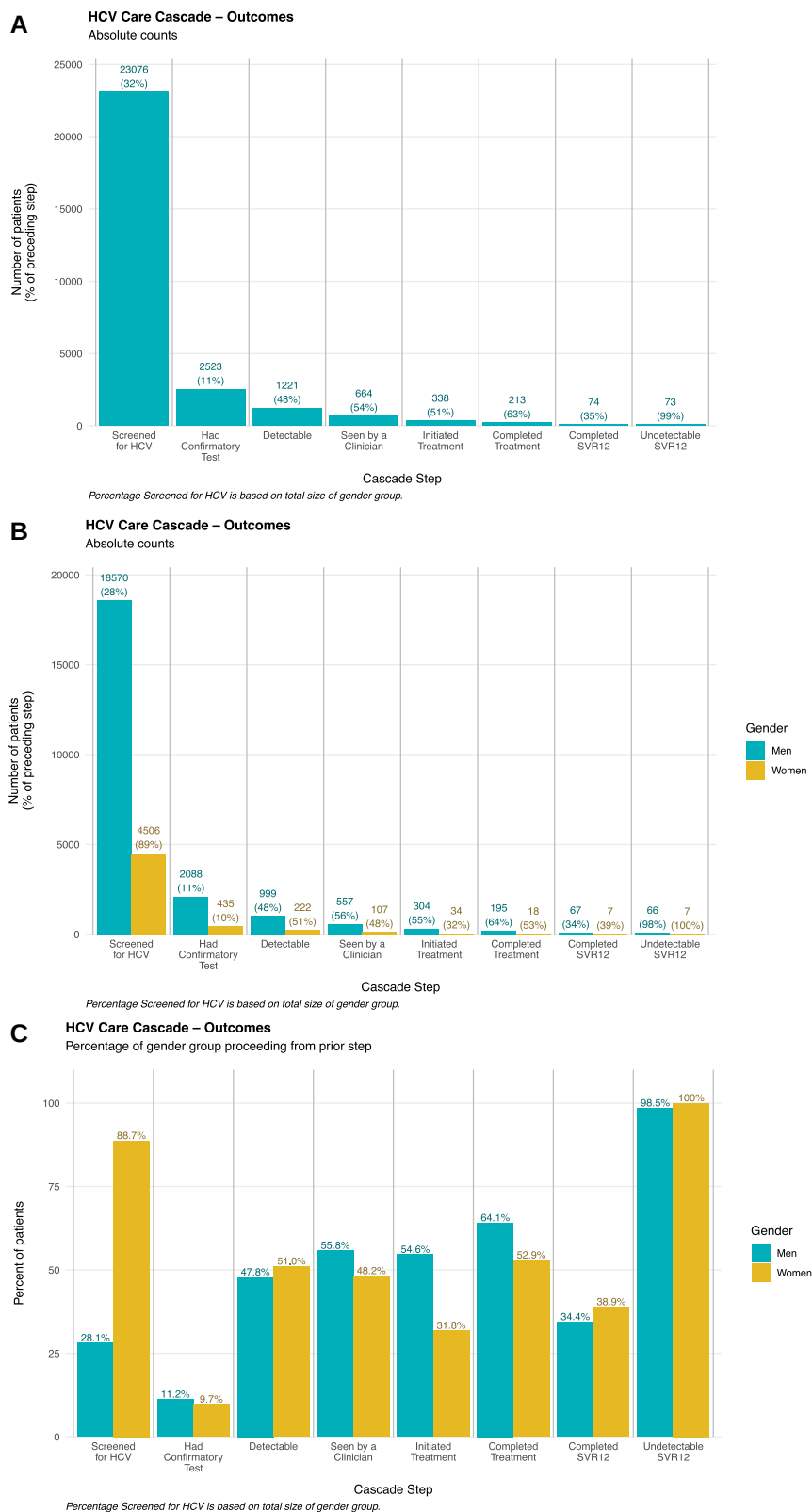


Figure 1. Hepatitis C virus (HCV) care cascade outcomes for patients in NYC jails October 2019–December 2023: *A*, overall counts, *B*, counts stratified by gender, and *C*, percentage proceeding from prior step stratified by gender.

by an HCV clinician (OR = 0.738, 95% CI = .551–.988, $P = .041$). Of those seen by a clinician, women had less than half the odds of on-site HCV treatment initiation of men (OR = 0.388, 95% CI = .247–.597, $P < .0001$). Women and men were comparable at all other cascade steps ($P > .05$).

After adjustment for LOS, among those with active HCV, women had significantly greater odds than men of being seen by an HCV clinician (adjusted odds ratio [AOR] = 1.72, 95% CI = 1.19–2.47, $P = .0037$) (Figure 2). In the LOS-adjusted model, of those seen by an HCV clinician, women maintained lower odds than men of HCV treatment initiation (AOR = 0.582, 95% CI = .355–.938, $P = .029$). All other cascade steps remained comparable with the unadjusted model.

After adjustment for multiple variables—LOS, HIV, history of mental health needs, history of select SUDs, and homelessness—women had lower odds compared with men than in the LOS-adjusted model of receiving a confirmatory HCV test (AOR = 0.677, 95% CI = .601–.762, $P < .0001$). All other cascade steps remained comparable with the LOS-adjusted model (Figure 2).

DISCUSSION

This study is the first to examine HCV care cascade outcomes among women compared with men in a carceral system during

the DAA treatment era. Our results show large HCV treatment gaps between women and men experiencing incarceration in a jail setting. After adjustment for multiple variables, women and men had comparable rates of detectable HCV viremia, and women had higher odds than men of being seen by an on-site HCV clinician, but women still had about half the odds of on-site HCV treatment initiation compared to men. These data indicate significant gaps in HCV treatment for women in a jail setting.

Women had shorter lengths of stay in jail than men, higher rates of comorbid medical, mental health, and SUD, and greater re-entry needs. Jail LOS is cited as a key barrier to HCV treatment in jail [14, 25]. When controlling for LOS, women had significantly greater odds of being seen by an on-site HCV clinician than men, supporting the hypothesis that their lower odds of being seen by an HCV clinician in the unadjusted model were largely driven by shorter stays. However, in the LOS-adjusted model, women maintained significantly lower odds of treatment initiation compared with men. This indicates that women's shorter LOS is not solely responsible for their lower rate of treatment initiation. These differences persisted when adjusting simultaneously for LOS, HIV, history of mental health needs, history of select SUDs, and homelessness. In both adjusted models, the difference in odds of treatment initiation between women and men was attenuated compared to the

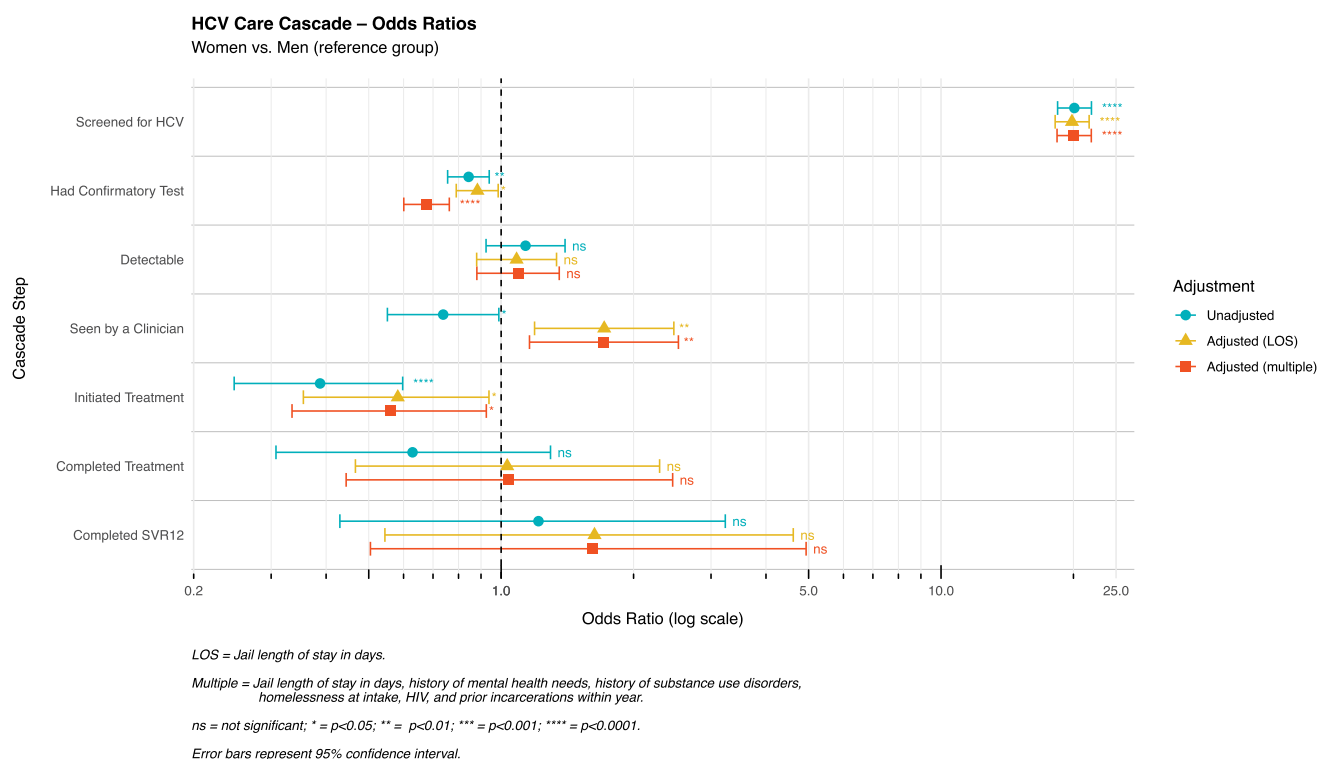


Figure 2. Odds ratios for women vs men (reference group) at each step of the HCV care cascade, unadjusted, adjusted for jail length of stay, and adjusted for multiple variables.

Table 2. Odds Ratios for Women Versus Men (Reference Group) at Each Step of the HCV Care Cascade, Unadjusted, Adjusted for Jail Length of Stay, and Adjusted for Multiple Variables

HCV care cascade step	Unadjusted ^{a,b}				Adjusted (LOS) ^c				Adjusted (multiple) ^d			
	OR	95% CI	P value		OR	95% CI	P value		OR	95% CI	P value	
Screened for HCV ^e	20.1	18.4–22.0	<.0001	****	19.8	18.2–21.7	<.0001	****	20.1	18.4–22.0	<.0001	****
Had confirmatory test ^f	0.843	.756–.940	.0022	**	0.883	.791–.985	.027	*	0.677	.601–.762	<.0001	****
Detectable	1.14	.924–1.40	.23	ns	1.08	.880–1.34	.45	ns	1.09	.880–1.36	.42	ns
Seen by a clinician	0.738	.551–.988	.041	*	1.72	1.19–2.47	.0037	**	1.71	1.16–2.53	.0068	**
Initiated treatment	0.388	.247–.597	<.0001	****	0.582	.355–.938	.029	*	0.561	.335–.925	.026	*
Completed treatment	0.629	.308–1.29	.20	ns	1.03	.466–2.29	.94	ns	1.04	.444–2.45	.93	ns
Completed SVR12 ^g	1.22	.430–3.23	.70	ns	1.63	.544–4.61	.36	ns	1.61	.504–4.93	.41	ns
Undetectable SVR12 ^g	>999	.00–Inf	1.0	ns	>999	.00–Inf	1.0	ns	0.00	.00–Inf	1.0	ns

* $P < .05$; ** $P < .01$; *** $P < .001$; **** $P < .0001$; ns, not significant.

Abbreviations: %, column percentage; CI, confidence interval; LOS, length of stay; OR, odds ratio. Bolded rows indicate significance at $P < .05$.

^aAnalysis is at the incarceration, not person level.

^bOdds ratio for women versus men (reference group), unadjusted.

^cOdds ratio for women versus men (reference group), adjusted for jail length of stay in days.

^dOdds ratio for women versus men (reference group), adjusted for jail length of stay in days, history of mental health needs, homelessness, history of select substance use disorders, HIV, and number of prior incarcerations in last year.

^eHCV screening was defined as having an HCV antibody, RNA, or genotype test, or self-reporting HCV.

^fHCV confirmatory test was defined as having an HCV RNA or genotype test.

^gSVR12 tests to confirm cure were defined as an HCV RNA test ≥ 64 d and ≤ 6 m after treatment completion.

unadjusted model, yet remained significantly lower for women. These findings suggest that LOS and certain comorbid conditions and barriers may indeed contribute to the treatment differences between women and men in this jail setting but do not fully account for them.

We found disproportionately higher rates of HIV, mental health needs, SMI, alcohol, opioid, and cocaine use disorders, and homelessness among women than men. This aligns with existing literature describing these disparities and more complex comorbidities women face, such as trauma [26, 27], intimate partner violence [26, 27], and unstable housing [27], all of which may create additional barriers to HCV care.

Notably, women and men in our cohort did not differ significantly in rates of detectable HCV: 47.8% and 51.0%, respectively, among those who received a confirmatory test. This contrasts with community studies that found a higher prevalence of HCV among women [6, 7] and suggests that gendered differences in treatment uptake in our setting were not driven by differences in HCV prevalence. Rates of treatment initiation, conversely, were consistent with existing literature. Men with active HCV who were seen by an HCV clinician initiated treatment at a rate of 54.6%, while women in the same category initiated at 31.8% (61.2% lower unadjusted odds than men). These rates align with those found in community studies in Seattle [3], British Columbia (specifically for women with comorbid medical and mental health conditions) [5], and the United States overall [4].

Overall rate of treatment initiation for individuals with active HCV was 27.7%, a notable increase over the 5.3% reported in the same jail system between 2014 and 2017 [14]. We attribute

this increase to numerous factors, including (1) increased staffing of clinical-care coordinators, allowing for earlier re-entry planning and evaluation of patients' projected LOS; (2) adjustments in program protocols allowing clinical evaluation and re-entry planning to occur in parallel rather than in series, potentially enabling sooner treatment start; (3) greater ability, driven in large part by new community partnerships, to continue treatment initiated on-site in non-carceral settings such as the community or substance use treatment programs following discharge, expanding eligibility for on-site initiation. This increase in on-site, carceral-based HCV treatment has shown promise in supplementing decreases in community treatment rates [13].

The need for gender-focused strategies in HCV care among women experiencing incarceration is paramount. While LOS may impact the feasibility of jail-based care, it does not independently preclude treatment initiation in our setting. If a means of treatment continuation in the community can be found, treatment is initiated on-site. However, comorbid medical and mental health conditions, re-entry barriers including homelessness, and lack of community support may preclude such a plan. As women in jail face these barriers at significantly higher rates than men, addressing them is key to ensuring equity in treatment outcomes.

Strong community partnerships are critical for addressing treatment gaps for women in jail with comorbid barriers to care. Partnerships with shelters and emergency housing, opioid and mental health treatment programs, citywide health departments, and primary care providers may facilitate re-entry planning for a greater proportion of patients living with HCV. For

individuals with limited community support, the creation and expansion of such partnerships may provide the necessary support to continue treatment initiated in jail in the community. This may ultimately enable higher rates of jail-based treatment initiation, particularly for women. Existing literature has begun to explore the value of carceral-community partnerships for continuity of care [28], but further research is needed to explore avenues for addressing the treatment gaps uncovered here.

Our study has limitations. First, the COVID-19 pandemic occurred during the study period, necessitating temporary changes in jail-based care procedures. During this time, the NYC jail system reached a historically low population and experienced disruptions in nonessential services [29]. Second, data on HCV treatment completion and SVR12 testing are limited to on-site completion during this study period. Although we collect data on treatment continuation in the community, this data is incomplete for the study period in part due to pandemic-related disruptions. Because the extent of incomplete capture could not be reliably quantified, formal missing-data sensitivity analyses were not feasible. However, stratified review of treatment continuation patterns across sub-study periods did not demonstrate a consistent temporal pattern suggestive of systematic bias. Additionally, other factors may have contributed to differences in treatment outcomes that could not be quantified or accounted for in this analysis. Lower rates of screening among men may contribute to a selection bias among those who progressed to later steps of the cascade. However, comorbidity rates were measured on a cohort level to mitigate this effect. Likewise, care cascade steps were conditional on engagement with prior steps. Therefore, observed gender differences in treatment initiation may partly reflect selection or process bias, and results should be interpreted judiciously. This limitation is relevant to our inclusion criterion of completion of medical intake, which by definition excludes those admitted during the study period who did not complete medical intake. However, we found that among the 11.0% of admitted individuals who did not complete intake and were not included in our cohort, the proportion of women to men did not differ significantly from our study cohort. Furthermore, this study reports gender in a binary manner, as gender was collected as “Male,” “Female,” or “Unknown” during the study period. Therefore, clear identification of gender-expansive (eg, transgender, nonbinary, genderfluid, and other gender nonconforming) patients was not feasible during the study period. Future studies should include gender-expansive categories to better understand the unique HCV care needs of this diverse population. Finally, these results may not be generalizable to other jail systems, which may differ in population characteristics or available resources. Our large, urban site is connected with the city’s public hospital system, provides universal opt-out testing for HCV in all facilities, and provides comprehensive discharge planning, medication at discharge,

and connections with community care, all of which may have impacted our results and may not be generalizable to other jail systems. Likewise, our site is a carceral setting, thus findings may not be applicable to many other healthcare contexts. These limitations notwithstanding, our findings represent what is possible in a large, urban jail population and underscore key areas that merit further attention.

PUBLIC HEALTH IMPLICATIONS

US jails represent a critical juncture in HCV elimination [12–14, 30, 31]. The role of jail-based HCV care is especially critical in reaching populations with greater barriers to care, particularly women experiencing incarceration, who may face greater burdens of comorbidity and may be less likely to engage in community-based care. Effective HCV elimination efforts must address underlying barriers and include gender-focused strategies that consider the specific needs of women in the carceral setting. Equitable distribution of treatment is possible, necessary, and the only path toward complete HCV elimination.

Notes

Acknowledgments. We thank Wendy McGahee, MD, Rodrigue Joseph, MD, Richard Figueroa, and Jacqueline Lapene for their contributions to patient care.

Data availability statement. The data underlying this study are not publicly available because they contain sensitive information from an incarcerated population and are subject to institutional and ethical restrictions to protect participant privacy and confidentiality. As such, the data cannot be shared.

Financial support. The authors declare that no funds, grants, or other support were received during the preparation of this manuscript.

Potential conflicts of interest. M. J. A. discloses investigator-initiated studies from AbbVie and Gilead paid to institution all outside the submitted work. R. S., B. K., N. G. V., J. W., and C. U. E. have no conflicts or funding sources to report.

References

1. Edlin BR, Eckhardt BJ, Shu MA, Holmberg SD, Swan T. Toward a more accurate estimate of the prevalence of hepatitis C in the United States. *Hepatology* 2015; 62:1353–63.
2. Iversen J, Page K, Madden A, Maher L. HIV, HCV, and health-related harms among women who inject drugs. *J Acquir Immune Defic Syndr* 2015; 69 Suppl 2:S176–81.
3. Corcorran MA, Tsui JI, Scott JD, Dombrowski JC, Glick SN. Age and gender-specific hepatitis C continuum of care and predictors of direct acting antiviral treatment among persons who inject drugs in Seattle, Washington. *Drug Alcohol Depend* 2021; 220:108525.
4. Stead AE, Frenette CT, Scherbakovsky S, et al. Hepatitis C treatment uptake differs by gender among a commercially insured population in the United States. In: Gores GJ, ed. *Hepatology*. San Diego: American Association for the Study of Liver Diseases, 2024:S1–2011.
5. Pearce ME, Bartlett SR, Yu A, et al. Women in the 2019 hepatitis C cascade of care: findings from the British Columbia Hepatitis Testers cohort study. *BMC Womens Health* 2021; 21:330.

6. Esmaeili A, Mirzazadeh A, Carter GM, et al. Higher incidence of HCV in females compared to males who inject drugs: a systematic review and meta-analysis. *J Viral Hepat* **2017**; 24:117–27.
7. Geddes L, Iversen J, Wand H, et al. Sex discrepancies in the protective effect of opioid agonist therapy on incident hepatitis C infection. *Clin Infect Dis* **2020**; 70:123–31.
8. Hoff E, Warden A, Taylor R, Nijhawan AE. Hepatitis C epidemiology in a large urban jail: a changing demographic. *Public Health Rep* **2023**; 138:248–58.
9. Beste LA, Bondurant HC, Ioannou GN. Prevalence and management of chronic hepatitis C virus infection in women. *Med Clin North Am* **2015**; 99:575–86.
10. Larney S, Madden A, Marshall AD, Martin NK, Treloar C. A gender lens is needed in hepatitis C elimination research. *Int J Drug Policy* **2022**; 103:103654.
11. Treloar C, McCredie L, Lloyd AR. Acquiring hepatitis C in prison: the social organisation of injecting risk. *Harm Reduct J* **2015**; 12:10.
12. Strickland JC, Staton M, Leukefeld CG, Oser CB, Webster JM. Hepatitis C antibody reactivity among high-risk rural women: opportunities for services and treatment in the criminal justice system. *Int J Prison Health* **2018**; 14:89–100.
13. Chan J, Akiyama MJ, Julian E, et al. Treating hepatitis C virus infection in jails as an offset to declines in treatment activity in the community, New York City, NY, 2014–2020. *AJPM Focus* **2024**; 3:100185.
14. Chan J, Kaba F, Schwartz J, et al. The hepatitis C virus care cascade in the New York City jail system during the direct acting antiviral treatment era, 2014–2017. *EClinicalMedicine* **2020**; 27:100567.
15. Lafferty L, Rance J, Dore GJ, Grebely J, Lloyd AR, Treloar C. Hepatitis C treatment as prevention in the prison setting: assessments of acceptability of treatment scale up efforts by prison correctional and health personnel. *Int J Drug Policy* **2021**; 98:103379.
16. He T, Li K, Roberts MS, et al. Prevention of hepatitis C by screening and treatment in U.S. prisons. *Ann Intern Med* **2016**; 164:84–92.
17. Chan J, Schwartz J, Kaba F, et al. Outcomes of hepatitis C virus treatment in the New York City jail population: successes and challenges facing scale up of care. *Open Forum Infect Dis* **2020**; 7:ofaa263.
18. Poulin C, Alary M, Lambert G, et al. Prevalence of HIV and hepatitis C virus infections among inmates of Quebec provincial prisons. *Can Med Assoc J* **2007**; 177:252–6.
19. Binswanger IA, Merrill JO, Krueger PM, White MC, Booth RE, Elmore JG. Gender differences in chronic medical, psychiatric, and substance-dependence disorders among jail inmates. *Am J Public Health* **2010**; 100:476–82.
20. Solomon L, Flynn C, Muck K, Vertefeuille J. Prevalence of HIV, syphilis, hepatitis B, and hepatitis C among entrants to Maryland correctional facilities. *J Urban Health* **2004**; 81:25–37.
21. Wenger PJ, Rottnek F, Parker T, Crippin JS. Assessment of hepatitis C risk factors and infection prevalence in a jail population. *Am J Public Health* **2014**; 104:1722–7.
22. Stockman LJ, Greer J, Holzmacher R, et al. Performance of risk-based and birth-cohort strategies for identifying hepatitis C virus infection among people entering prison, Wisconsin, 2014. *Public Health Rep* **2016**; 131:544–51.
23. Gane E, de Ledinghen V, Dylla DE, et al. Positive predictive value of sustained virologic response 4 weeks posttreatment for achieving sustained virologic response 12 weeks posttreatment in patients receiving glecaprevir/pibrentasvir in phase 2 and 3 clinical trials. *J Viral Hepat* **2021**; 28:1635–42.
24. Reddy KR, Lim JK, Kuo A, et al. All-oral direct-acting antiviral therapy in HCV-advanced liver disease is effective in real-world practice: observations through HCV-TARGET database. *Aliment Pharmacol Ther* **2017**; 45:115–26.
25. Beckwith CG, Kurth AE, Bazerman LB, et al. A pilot study of rapid hepatitis C virus testing in the Rhode Island department of corrections. *J Public Health (Bangkok)* **2016**; 38:130–7.
26. Henry BF. Typologies of adversity in childhood & adulthood as determinants of mental health & substance use disorders of adults incarcerated in US prisons. *Child Abuse Negl* **2020**; 99:104251.
27. Karlsson ME, Zielinski MJ. Sexual victimization and mental illness prevalence rates among incarcerated women: a literature review. *Trauma Violence Abuse* **2020**; 21:326–49.
28. Akiyama MJ, Bialek T, Simonson R. The carceral-community cascade and HCV elimination. *JAMA* **2025**; 333:369–70.
29. Chan J, Burke K, Bedard R, et al. COVID-19 in the New York city jail system: epidemiology and health care response, March–April 2020. *Public Health Rep* **2021**; 136:375–83.
30. Hammett TM, Harmon MP, Rhodes W. The burden of infectious disease among inmates of and releasees from US correctional facilities, 1997. *Am J Public Health* **2002**; 92:1789–94.
31. Varan AK, Mercer DW, Stein MS, Spaulding AC. Hepatitis C seroprevalence among prison inmates since 2001: still high but declining. *Public Health Rep* **2014**; 129:187–95.