Impact of self-perceived HCV status and healthcare discrimination on HCV high-risk behavior among people who used drugs in New Haven, CT

Jones S[1], Warden C[2], Kil N[1], Znamierowski, E[1], Morgan, A[3], Altice F[1], Glick S[3]

[1]Yale School of Medicine, [2]Yale New Haven Hospital, [3]University of Washington School of Medicine

Background

- Hepatitis C Virus (HCV) disproportionately affects people who use drugs (PWUD), and interrupting transmission is crucial to reducing burden of disease[1,2].
- Screening for HCV allows for identification and treatment of affected individuals,[2] but the impact of knowledge of HCV+ status on behaviors among people who use drugs is unclear.
- Increased screening for HCV may have an add-on benefit of encouraging behavior modification among those with an accurate understanding of their HCV status.
- Increased engagement in care may also promote safer HCV-related behaviors among people who use drugs.
- We explored these hypotheses using data from New Haven, CT from the Project Needle Exchange Utilization Survey (NEXUS)

Aims

Use New Haven data from Project Needle Exchange Utilization Survey (NEXUS) to examine:

- How accurate is self-assessment of HCV status among people who use drugs?
- Does HCV high-risk behavior differ depending on perceived HCV status among people who use drugs?
- Does engagement in healthcare impact HCV high-risk behavior among people who use drugs?

Methods

- NEXUS is a cross-sectional survey of people who use drugs that was administered by the U.S. Centers for Disease Control and Prevention between 06/2021 – 07/2022, IRB#: 2000031367.[3]
- Participants were recruited from 6 SSPs in the US. Enrolled participants were invited to refer up to 4 people who used drugs to the survey. Participants completed survey and concurrent HCV rapid antigen and RNA testing.
- We used univariate and multivariate analyses to determine 1) concordance of self-perceived HCV status with actual status; 2) high-risk behaviors for HCV, perception of HCV status, and presumed protective and detrimental factors for HCV risk behaviors among New Haven participants.
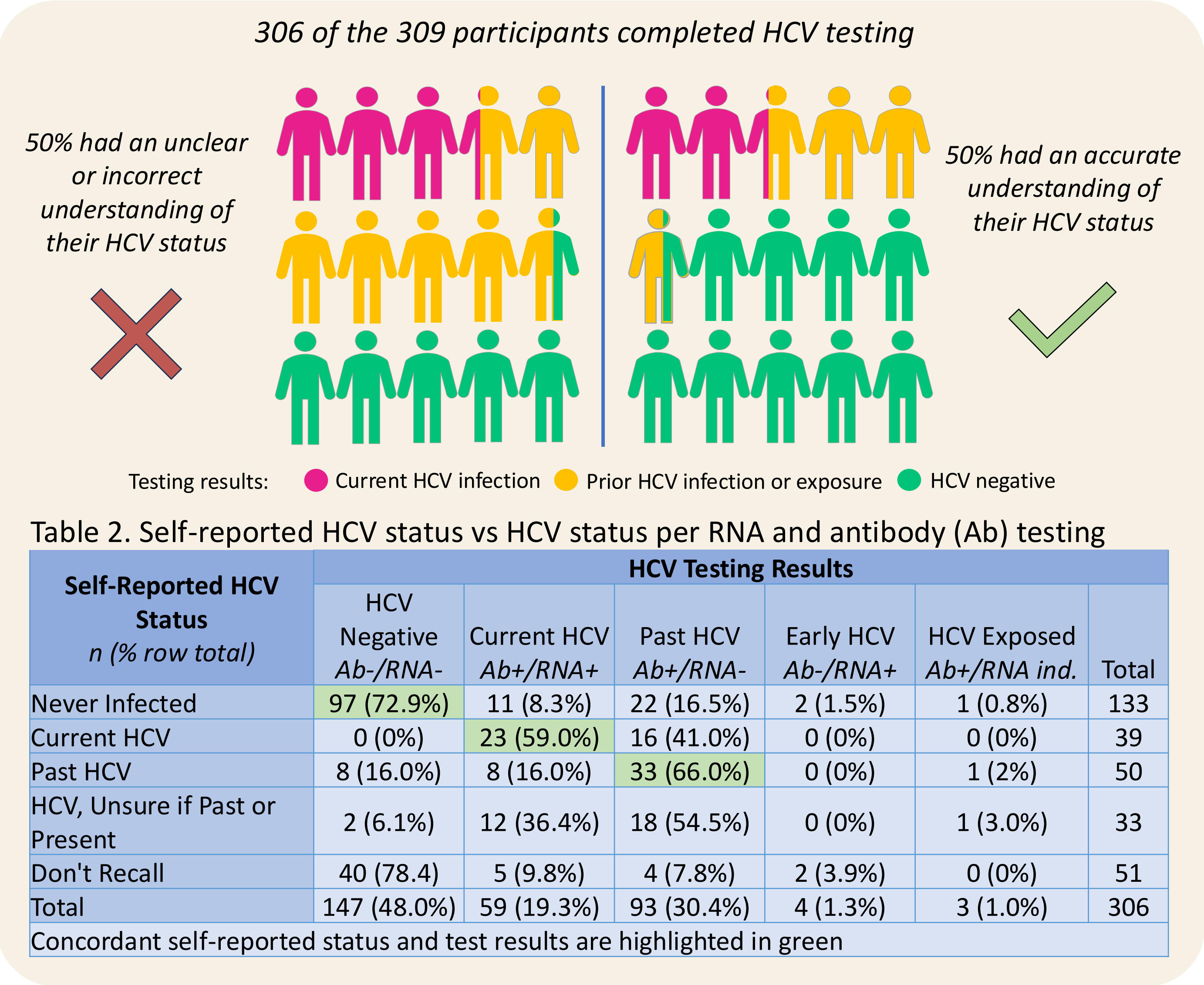
Results

309 participants completed the NEXUS survey administered at New Haven SSP. They experienced high rates of negative detriments of health.

Table 1. Demographics, n = 309

Characteristic	n (%)
Age	
18-39	87 (28.1%)
40-49	105 (34.0%)
50 and above	117 (37.8%)
Gender	
Man	214 (69.3%)
Woman	90 (29.1%)
Genderqueer/non-binary	5 (1.6%)
Race	
American Indian/Alaska Native	6 (1.9%)
Asian or Native Hawaiian/Pacific Islander	3 (1.0%)
Black/African American	92 (29.8%)
White	171 (55.3%)
Multiple or Other	37 (12.0%)
Hispanic/Latine ethnicity	75 (24.3%)
Education	
Less than High School	76 (24.6%)
12th or GED	156 (50.5%)
Some college or above	77 (24.9%)
Employed full or part time	59 (25%)
Unhoused in the last 6 months	193 (62.5%)

306 of the 309 participants completed HCV testing

50% had an unclear or incorrect understanding of their HCV status

50% had an accurate understanding of their HCV status

Testing results: ● Current HCV infection ● Prior HCV infection or exposure ● HCV negative

Table 2. Self-reported HCV status vs HCV status per RNA and antibody (Ab) testing

Self-Reported HCV Status _n (% row total)_	HCV Testing Results					
	HCV Negative Ab-/RNA-	Current HCV Ab+/RNA+	Past HCV Ab+/RNA-	Early HCV Ab+/RNA+	HCV Exposed Ab+/RNA ind.	Total
Never Infected	97 (72.9%)	11 (8.3%)	22 (16.5%)	2 (1.5%)	1 (0.8%)	133
Current HCV	0 (0%)	23 (59.0%)	16 (41.0%)	0 (0%)	0 (0%)	39
Past HCV	8 (16.0%)	8 (16.0%)	33 (66.0%)	0 (0%)	1 (2%)	50
HCV, Unsure if Past or Present	2 (6.1%)	12 (36.4%)	18 (54.5%)	0 (0%)	1 (3.0%)	33
Don't Recall	40 (78.4)	5 (9.8%)	4 (7.8%)	2 (3.9%)	0 (0%)	51
Total	147 (48.0%)	59 (19.3%)	93 (30.4%)	4 (1.3%)	3 (1.0%)	306
Concordant self-reported status and test results are highlighted in green						

Table 3. Prevalence of HCV high-risk behaviors by self-reported HCV status

HCV-Related Behavior in Previous 6 Months _n/total (%)_	Self-Reported HCV Status*				
	No HCV	Current/Possible HCV	Past HCV	Total	P
	n = 186	n = 72	n = 51	n = 309	
Use of any injection drugs	134/186 (72.0%)	66/72 (91.7%)	46/51 (90.2%)	246/309 (79.7%)	<0.001
Behaviors with high risk to self					
Use of syringe after someone else	25/134 (18.7%)	20/66 (30.3%)	10/46 (21.7%)	55/246 (22.4%)	0.18
Use of works** after someone else	40/134 (29.8%)	29/66 (43.9%)	15/32.6 (32.6%)	84/246 (34.2%)	0.14
Backloading*** with syringe from someone else	25/134 (18.7%)	10/66 (15.2%)	11/46 (23.9%)	46/246 (18.7%)	0.50
Behaviors with high risk to others					
Giving used syringe to someone else	39/134 (29.1%)	20/66 (30.3%)	15/46 (32.6%)	74/246 (30.1%)	0.90
Unprotected sex	115/186 (61.8%)	40 (55.6%)	32 (62.8%)	187/309 (60.5%)	0.61

*Self report of unknown/untested combined with HCV negative. Self-report of HCV positive but unknown current/past combined with current HCV. Relationships are not statistically significant before combining variables.
**Cooker, cotton, filter, or water
***Use of drugs that had been divided with a syringe previously used by another for injection

→ Perceived HCV status did not correlate significantly with behaviors that were high-risk to self (utilization of used syringes or paraphernalia), or high-risk to others (giving used syringes or engaging in unprotected sex (Table 3).

→ Perceived healthcare discrimination based on substance use disorder was associated with increased engagement in behaviors with high risk to self and others (Table 4). Logistic regression controlling for self-reported HCV status further supported this association (combined risk behavior to self OR 2.6, 95% CI1.5-4.5, p=0.001; giving used syringes to others OR 2.8, 95% CI 1.5-5.0, p=0.001) (Table 4).

→ Engagement in HCV treatment, substance use disorder treatment, and recent doctor visits were also not associated with reduced high-risk behaviors (data not shown).

Table 4. Prevalence of HCV high-risk behaviors by perceived drug-use related healthcare discrimination

HCV-Related Behavior in Previous 6 Months _n/total (%)_	Perceived Healthcare Discrimination* in Previous 6 Months			
	No Healthcare Discrimination	Healthcare Discrimination	Total	P
Use of any injection drugs	116/155 (74.8%)	130/154 (84.4%)	246/309 (79.6%)	0.03
High-risk to Self				
Use of syringe after someone else	18/116 (15.5%)	37/130 (28.5%)	55/246 (22.4%)	0.02
Use of works after someone else	27/116 (23.3%)	57/130 (43.9%)	84/246 (34.2%)	0.001
Backloading with syringe from someone else	16/116 (13.8%)	30/130 (23.1%)	46/246 (18.7%)	0.06
High-risk to others				
Gave needle in past 6 months	23/116 (19.8%)	51/130 (39.2%)	74/246 (30.1%)	0.001
Unprotected sex in past 6 months	85/155 (54.8%)	102/154 (66.2%)	187/309 (60.5%)	0.04

*Healthcare discrimination defined as experience of discrimination due to drug use in a healthcare setting, or avoidance of healthcare because of fear of discrimination due to drug use.

Conclusions

- People who use drugs often have an inaccurate assessment of their HCV status.
- Knowledge of HCV+ status and engagement in care do not appear to correlate with high-risk behaviors, but experiences of healthcare discrimination do.
- HCV screening among people who use drugs remains essential for identifying affected individuals and providing treatment, but diagnosis of HCV is not sufficient to interrupt transmission.
- Future studies should explore the relationship between perceived HCV status and risk behaviors further, including the possible impact of increased HCV-related education.
- Reducing discrimination against people who use drugs in the healthcare setting may encourage behaviors that reduce the risk of HCV transmission.

Limitations

- Convenience sampling at a university-affiliated SSP is not representative the general population of people who use drugs.
- This study is insufficiently powered to definitively rule out correlation between risk behaviors and perceived HCV status. We do note that perceived HCV positive status trends toward increased risk-taking rather than decreased risk-taking.
- We cannot determine the direction of associations.

Acknowledgements

References

1. Degenhardt L, Peacock A, Colledge S, et al. Global prevalence of injecting drug use and sociodemographic characteristics and prevalence of HIV, HBV, and HCV in people who inject drugs: a multistage systematic review. _Lancet Glob Health_. 2017;5(12):e1192-e1207. doi:10.1016/S2214-109X(17)30375-3

2. Hagan H, Pouget ER, Des Jarlais DC. A Systematic Review and Meta-Analysis of Interventions to Prevent Hepatitis C Virus Infection in People Who Inject Drugs. _The Journal of Infectious Diseases_. 2011;204(1):74-83. doi:10.1093/infdis/jir196

3. Centers for Disease Control and Prevention. HIV and HCV Infection and Related Behaviors Among Persons Who Use Drugs—6 U.S. Syringe Services Programs, 2021–2022. HIV Surveillance Special Report 33. https://www.cdc.gov/hiv/library/reports/hiv-surveillance.html. Published December 2023.