Prevalence and Risk Factors for Hepatitis C Viremia in People with HIV in the US During the DAA Era

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BACKGROUND

- National US data on the burden and risks for active hepatitis C (HCV) infection in people with HIV (PWH) during the direct-acting antiviral (DAA) era are limited.
- We evaluated prevalence (2011-22) and risk factors (2018-22) for HCV viremia in PWH to understand current progress and guide future efforts toward HCV micro-elimination in PWH.

METHODS

- Study conducted at 9 sites of the CFAR Network of Integrated Clinical Systems (CNICS) cohort[1]
- Cross-sectional examination of HCV viremia prevalence of adult PWH in clinical care (≥1 encounter) for each time period and demographic group:
  - Time period:
    - 2011-13: Pre-Interferon Free DAA Era
    - 2014-17: Early DAA Era
    - 2018-22: Current DAA Era
  - Demographic groups: age, gender, race/ethnicity
  - *HCV viremia:* positive HCV RNA or genotype on most recent lab result
- Relative risk regression (log-binomial) used to evaluate risk factors for HCV viremia in the current DAA era (2018-22)
  - Adjusted for CNICS site, demographic factors, and clinical characteristics:
    - *Current substance use:* self-report instruments for alcohol (AUDIT-C) and other drugs (ASSIST)
    - *Depressive symptom severity:* self-report instrument (PHQ-9), range 0-27
    - *FIB-4 score:* a measure of liver fibrosis calculated using the age and closest lab values on or before a participant's HCV lab test; scores truncated at 5 to limit outlier effects.

$$\text{FIB-4} = \frac{\text{Age} \times \text{AST}}{\text{Platelet Count} \times \sqrt{\text{ALT}}}$$

- Missing values underwent multiple imputation (m=50)

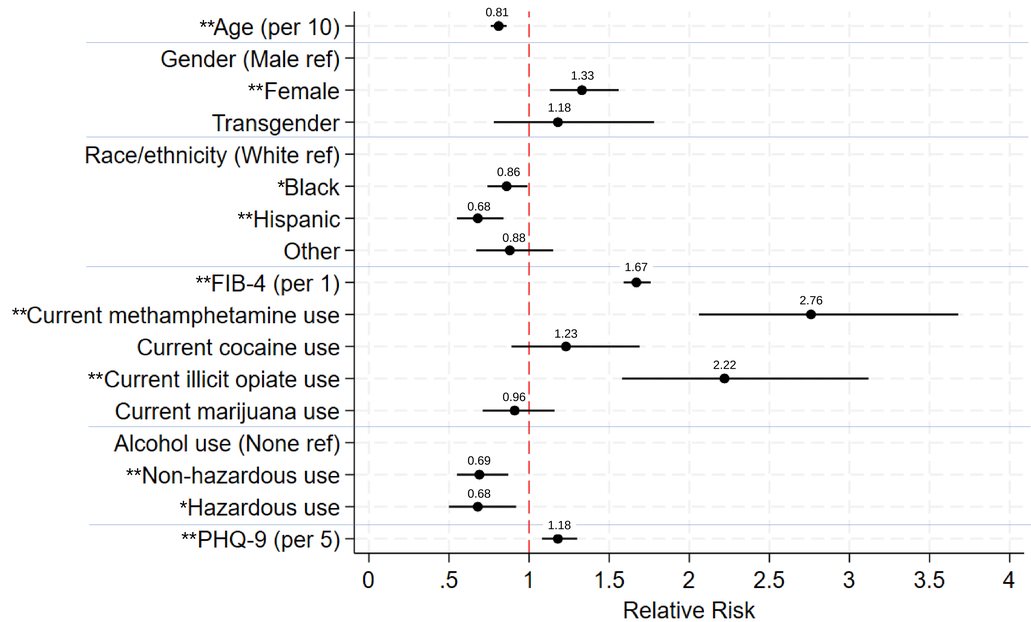
The prevalence of HCV viremia in PWH, overall and across key demographic groups, improved over time in the US during the DAA era.

Table. Prevalence of HCV viremia among PWH in the US by DAA era and demographic group.
For each cell, n is the number of positive tests, and % is the proportion of positive tests within a cell's group (e.g., n=77 or 3.0% of <30 year old PWH had a positive HCV RNA or genotype on their last test in 2011-13).

Characteristic	Pre-IFN Free DAA Era 2011-13 N=22445	Early DAA Era 2014-17 N=25161	Current DAA Era 2018-22 N=25314
Overall (HCV viremia)	1953 (8.7%)	2634 (10.5%)	1204 (4.8%)
Overall (HCV viremia or antibody positive)	4236 (18.9%)	4636 (18.4%)	4538 (17.9%)
Age (years)			
<30	77 (3.0%)	98 (3.5%)	54 (3.2%)
30-39	259 (5.8%)	333 (6.6%)	267 (5.2%)
40-49	672 (9.2%)	654 (10.4%)	271 (5.2%)
50-59	748 (12.1%)	1073 (13.8%)	395 (5.4%)
≥60	197 (10%)	476 (14.4%)	217 (3.7%)
Gender			
Male	1509 (8.5%)	2021 (10.1%)	923 (4.6%)
Female	401 (9.3%)	557 (11.9%)	253 (5.4%)
Transgender	43 (13.0%)	56 (13.1%)	28 (5.6%)
Race/Ethnicity			
White	856 (8.7%)	1064 (10.1%)	557 (5.6%)
Black	860 (9.8%)	1200 (11.8%)	448 (4.3%)
Hispanic	166 (5.9%)	242 (7.5%)	132 (3.9%)
Other	71 (7.4%)	128 (10.3%)	67 (4.8%)

Abbreviations: IFN: interferon

Figure. Relative risk estimates[a] of demographic, clinical, and behavioral factors for HCV viremia in the current DAA era (2018-22).



[a]Model adjusted for CNICS site and listed covariates.
**P<0.05, **P≤0.001*
Non-hazardous alcohol use defined as AUDIT-C score 1-4 in men and 1-3 in women.
Hazardous alcohol use defined as AUDIT-C score >4 in men and >3 in women.

DISCUSSION AND CONCLUSIONS

- The prevalence of HCV viremia during the DAA era in this US-based national cohort of PWH improved over time and across demographic groups but remains much higher than those without HIV[2]
- The disparity (range) in HCV viremia prevalence across age, gender, and race/ethnicity groups was smaller in 2018-22 than earlier time periods.
- Our findings underscore the continued importance of prioritizing HCV testing and treatment in all PWH, especially among certain key groups, and potential benefits of addressing substance use and mental health for achieving HCV elimination goals.

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