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# Evaluation of the Impact of HIV Diagnosis on the Hepatitis C Care Cascade and Risk Behaviors Among Persons Receiving Medication Treatment for Opioid Use Disorder

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## BACKGROUND

- People who injection drugs (PWID) are at increased risk of acquisition and transmission of HIV and Hepatitis C virus (HCV)[1]
- Treatment of acute HCV among PWID has the potential to serve as a preventative measure for HCV transmission and increased uptake has been associated with reduction in prevalence of chronic HCV[2]
- For PWID, medication for opioid use disorder (e.g. buprenorphine, methadone and extended-release naltrexone; MOUD) is associated with increased self-reported retention and uptake of direct acting antiviral (DAA) treatment[3]
- Our primary aim was to assess the HCV treatment cascade among PWID with OUD who initiated MOUD, specifically comparing differences in HIV status
- Our second aim was to assess whether receipt of MOUD would modulate opioid injection use and stimulant use frequencies

## METHODS

- This was a secondary analysis of two cohort observational studies that assessed the differences in immunologic markers of persons with OUD initiating MOUD (MAT BIO and Persistence; 2016-2022)[4,5]
- All people with HIV (PWH) were prescribed antiretroviral mediations and were HIV virally suppressed
- Rapid HIV and HCV testing was conducted at baseline; PWH had HIV viral loads obtained at baseline and 3-month follow-up time; those with HCV had HCV viral loads obtained at baseline and 3- (Persistence; MAT BIO) and 6-month (MAT BIO) follow-up timepoints
- DAA treatment information was obtained via electronic medical chart review
- Daily substance use and route of administration was obtained via the Timeline Followback (TLFB). Urine toxicology was also collected at baseline and month 3

### HCV Care Cascade

- A serious of chi-square test were used to determine the stepwise progression through the HCV care cascade based on HIV status (Figures 1a, 1b, and 1c)

### Injection Opioid Use and Stimulant Use

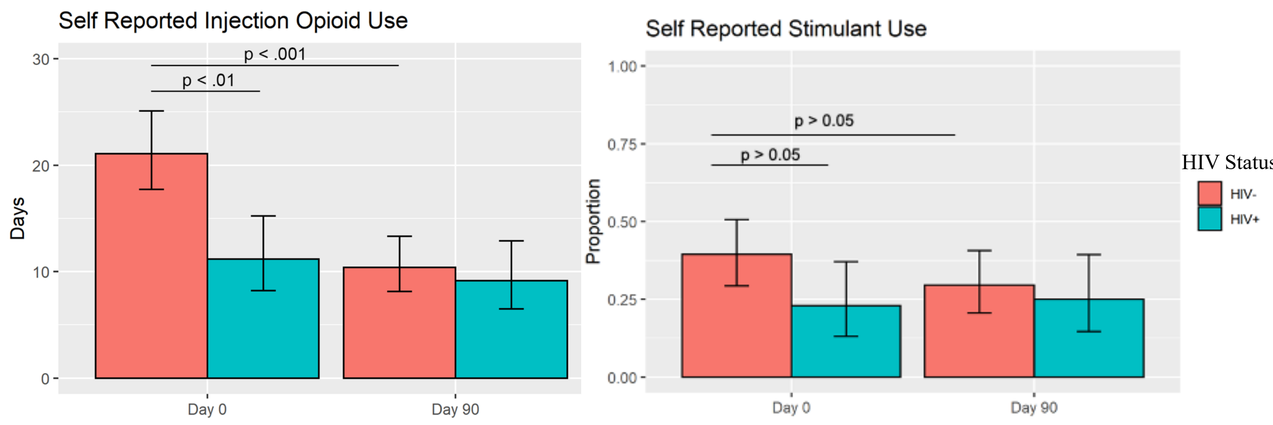
- Generalized linear regression models were conducted to assess for changes in opioid injection and stimulant use from baseline to 90 days post initiation of MOUD
- Mean number of days injecting opioids over 30 days was modeled with a Poisson distribution and log link function. Stimulant use was modeled with a binary distribution with a log link function (Figure 2)
- All models included a compound symmetry covariance structure to account for intra-participant correlations
- In addition to the primary variables of HIV status, time, and a time*HIV status interaction some models also included the following covariates: gender, age, race, educational attainment, homeless status, and form of MOUD

## RESULTS

**Table 1.** Participant Baseline Characteristics by HIV status

| Variable | Total N=129 n (%) | HIV Positive N=48 n (%) | HIV Negative N=81 n (%) | p-value |
|---|---|---|---|---|
| Gender | | | | 0.003 |
| Male | 93 (72.1) | 40 (83.3) | 53 (65.4) | |
| Female | 34 (26.4) | 6 (12.5) | 28 (34.6) | |
| Transgender | 2 (1.6) | 2 (4.2) | 0 (0) | |
| Age, median (range), y | 41 (31, 53) | 53 (47, 59) | 35 (29, 45) | <0.001 |
| Race | | | | <0.001 |
| White | 76 (58.9) | 60 (74.1) | 16 (33.3) | |
| Black | 31 (24.0) | 12 (14.8) | 19 (39.6) | |
| >1 Race, or other race | 8 (6.2) | 2 (2.5) | 6 (12.5) | |
| Hispanic | 39 (30.2) | 15 (31.5) | 24 (29.6) | 0.846 |
| Homeless – past 30 days | 40 (31.1) | 22 (45.8) | 18 (22.2) | 0.005 |
| MOUD prescribed | | | | <0.001 |
| Buprenorphine | 68 (52.7) | 33 (68.8) | 35 (43.2) | |
| Methadone | 55 (42.6) | 12 (25.0) | 43 (53.1) | |
| Extended-release naltrexone | 6 (4.7) | 3 (6.3) | 3 (3.7) | |
| Urine toxicology screen positive | | | | |
| Opioids | 83 (64.3) | 24 (50.0) | 59 (72.8) | 0.38 |
| Stimulants | 51 (39.5) | 17 (35.4) | 34 (42.0) | 0.46 |
| TLFB reported use | | | | |
| Heroin use, intranasal | 46 (36.0) | 16 (33.3) | 30 (37.5) | 0.634 |
| Heroin use, injection | 49 (38.3) | 14 (29.7) | 35 (43.8) | 0.100 |
| Fentanyl use, injection | 1 (0.8) | 1 (2.1) | 0 (0) | 0.375 |
| CD4 Count, mean (range) (those w/ HIV) | 555.5 (373.5, 949.5) | 555.5 (373.5, 949.5) | -- | -- |
| Hepatitis C ab positive | 78 (60.5) | 40 (83.3) | 38 (46.9) | <0.001 |

**Figure 2.** Change in injection opioid and stimulant use from baseline to month 3




## CONCLUSIONS

- Our results suggest that although initiation and maintenance on MOUD was high, subsequent testing for HCV was poor among participants without HIV, reflecting an area in need of improvement in the HCV cascade of care
- Persons without HIV who have OUD may benefit the most from counseling and linkage to OUD treatment
- Integration and improvement of HCV and opioid and stimulant use disorder treatment is needed

**Figure 1.** HCV care cascades among persons with OUD who are receiving MOUD

**Figure 1a.** Total sample

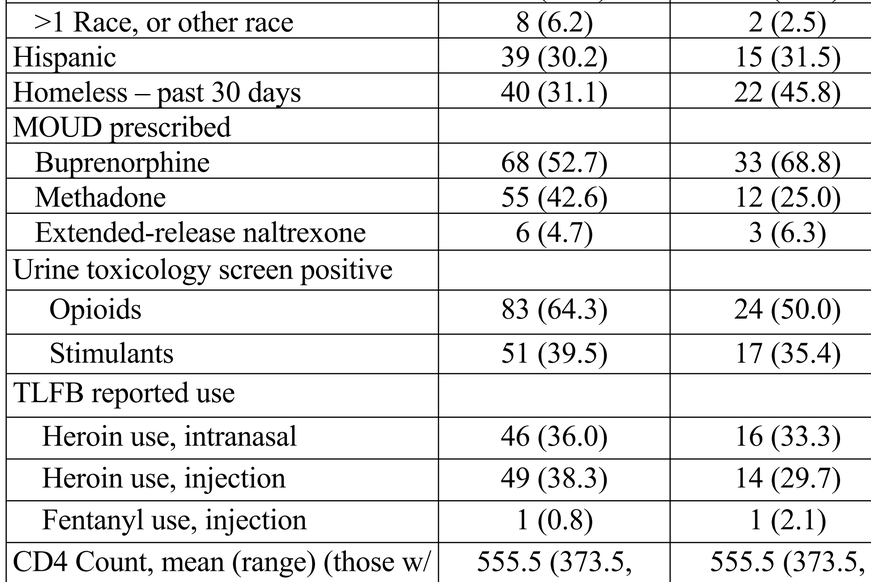



**Figure 1b.** Persons living with HIV

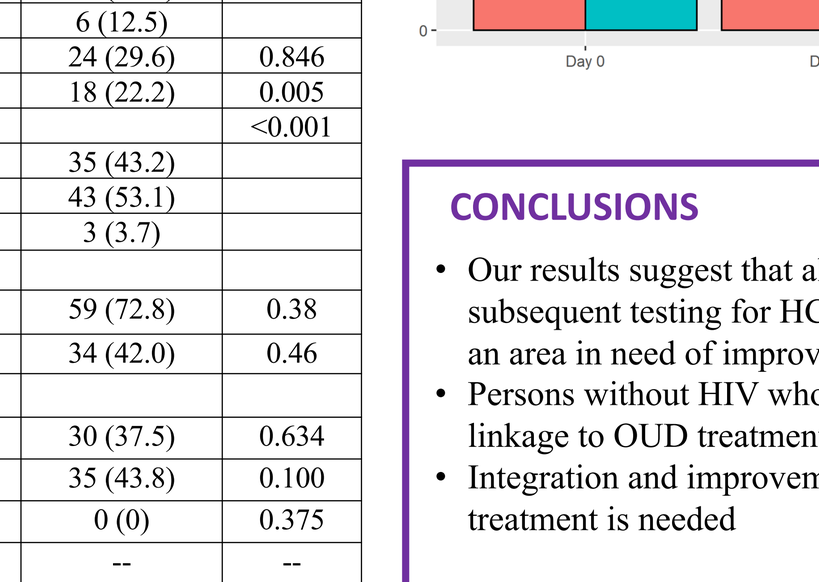
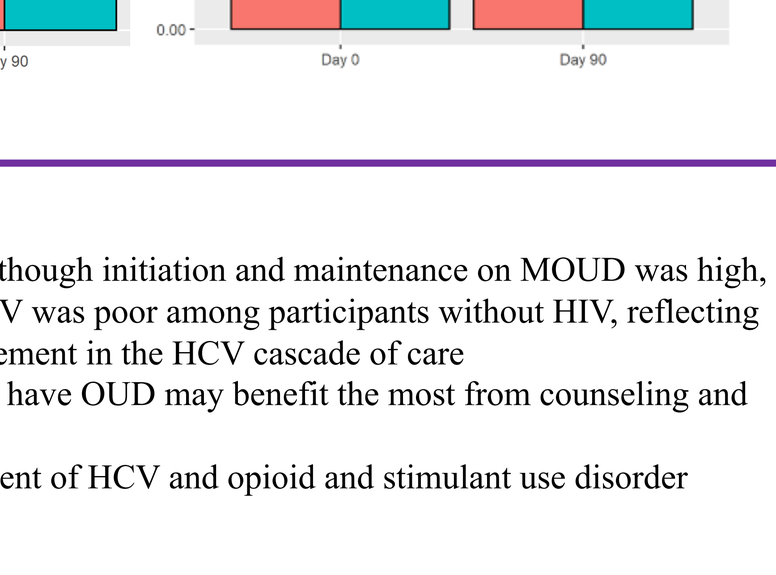



**Figure 1c.** Persons without HIV




**PWH who received MOUD underwent higher rates of HCV testing, but HCV treatment uptake did not differ by HIV serostatus**

## References

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