

# Disparities in Hepatitis C Treatment and Overcoming Healthcare Biases

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## Background

- Current guidelines for chronic hepatitis C virus (HCV) recommend all patients be treated with direct acting antivirals (DAAs).
- Despite the high demand for DAAs after their initial release, many patients remain untreated and the incidence of HCV continues to rise.
- Disparities exist in HCV care and health systems may not be addressing the gaps in care adequately.<sup>1-4</sup>

## Aims

- Identify all untreated HCV patients at a large, urban academic medical center
- Understand factors associated with HCV treatment initiation

## Methods

- Using the electronic medical record (EMR), we performed a cross-sectional study of all chronic HCV patients engaged in care at a single center from 2014-2017.
- Criteria for chronic HCV: 1) detectable HCV RNA, 2) prescription for pegylated interferon and/or DAA therapy; or 3) ICD 9/10 code for chronic HCV.
- Demographic, clinical, pharmaceutical, and visit data were abstracted from the EMR through June 2019.

## Results

### Cohort Characteristics

- 2360 chronic HCV patients were identified, with a mean age of 63.5 years. 64.2% were male, 52.5% were Non-Hispanic White, and 31.1% had a primary care provider (PCP). 71.1% had public health insurance.
- 76.4% had ever been prescribed HCV treatment (DAA or pre-DAA) by the end of the study period.
- 29.0% did not have SVR labs in the EMR.

### Multivariable Analysis

- Treatment was more likely amongst Hispanic compared to Black patients (OR 0.54, p = 0.005).
- Clinical features associated with HCV treatment included low platelet count  $\leq 100 \times 10^9/L$  (OR 2.54, p < 0.0001) and HIV-HCV co-infection (OR 2.31, p < 0.0001).
- Aspects of healthcare access associated with HCV treatment included having a PCP (OR 1.45, p = 0.013), a hepatologist (OR 12.61, p < 0.0001), and private health insurance (OR 1.82, p < 0.0001).
- Non-significant factors included sex, language, substance use, and depression.

Table 1. Baseline characteristics of chronic HCV cohort.

| Characteristic                                 | Entire cohort N = 2360 | Ever treated N = 1802 | Not treated N = 558 | p value   |
|--|------------------------|-----------------------|---------------------|-----------|
| Age (mean $\pm$ SD)                            | 63.5 $\pm$ 10.5        | 64.0 $\pm$ 9.7        | 61.7 $\pm$ 12.7     | < 0.0001* |
| Age (n, %) $\geq$ 45 years                     | 2252 (95.4)            | 1731 (96.1)           | 521 (93.4)          | < 0.0001* |
| < 45 years                                     | 108 (4.6)              | 71 (3.9)              | 37 (6.6)            |           |
| Sex (n, %)                                     |                        |                       |                     |           |
| Male   | 1515 (64.2)            | 1171 (65.0)           | 344 (61.7)          | 0.157     |
| Female   | 845 (35.8)             | 631 (35.0)            | 213 (38.4)          |           |
| Race/Ethnicity (n, %)                          |                        |                       |                     |           |
| Non-Hispanic White                             | 1238 (52.5)            | 945 (52.4)            | 293 (52.5)          | 0.005*    |
| Black  | 351 (14.9)             | 247 (13.7)            | 104 (18.6)          |           |
| Asian  | 200 (8.5)              | 159 (8.8)             | 41 (7.4)            |           |
| Hispanic                                       | 399 (16.9)             | 325 (18.0)            | 74 (13.3)           |           |
| Other  | 172 (7.3)              | 126 (7.0)             | 46 (8.2)            |           |
| Language (n, %)                                |                        |                       |                     |           |
| English  | 2174 (92.1)            | 1656 (91.9)           | 518 (92.8)          | 0.705     |
| Spanish  | 57 (2.4)               | 48 (2.7)              | 9 (1.6)             |           |
| Asian  | 55 (2.3)               | 44 (2.4)              | 11 (2.0)            |           |
| Other  | 74 (3.1)               | 54 (3.0)              | 20 (3.6)            |           |
| Platelet count (n, %) $\leq 100 \times 10^9/L$ | 998 (42.3)             | 886 (49.2)            | 112 (20.1)          | < 0.0001* |
| $101-140 \times 10^9/L$                        | 356 (15.1)             | 267 (14.8)            | 89 (16.0)           |           |
| $> 140 \times 10^9/L$                          | 727 (30.8)             | 503 (27.9)            | 224 (40.1)          |           |
| Unknown  | 279 (11.8)             | 146 (8.1)             | 133 (23.8)          |           |
| PC visit ever (n, %)*                          |                        |                       |                     |           |
| Yes  | 733 (31.1)             | 601 (33.4)            | 132 (23.7)          | < 0.0001* |
| No   | 1627 (68.9)            | 1201 (66.6)           | 426 (76.3)          |           |
| Hepatology visit ever (n, %)                   |                        |                       |                     |           |
| Yes  | 1411 (59.8)            | 1321 (73.3)           | 90 (16.1)           | < 0.0001* |
| No   | 949 (40.2)             | 481 (26.7)            | 468 (83.9)          |           |
| Insurance (n, %)                               |                        |                       |                     |           |
| Private  | 578 (24.9)             | 477 (26.5)            | 101 (18.1)          | < 0.0001* |
| Public   | 1691 (71.7)            | 1274 (70.7)           | 417 (74.7)          |           |
| None   | 91 (3.9)               | 51 (2.8)              | 40 (7.2)            |           |
| HIV co-infection                               |                        |                       |                     |           |
| Yes  | 258 (10.9)             | 195 (10.8)            | 63 (11.3)           | 0.756     |
| No   | 2102 (89.1)            | 1607 (89.2)           | 495 (88.7)          |           |

## Conclusions

- It is encouraging that the majority of this cohort received HCV treatment initiation, but significant disparities were found.
- Patients who are Black, have public or no health insurance, do not have a PCP or a hepatologist, or do not have cirrhosis were less likely to be treated.
- Patients with HIV co-infection and low platelet counts were more likely to have been treated, which is appropriate. Yet, nearly 1/3 of all treated patients were missing SVR labs.
- Without a systematic approach to HCV, health systems may be permitting disparities in care. To overcome biases and reduce liver-related mortality for all, health systems need to identify their HCV patients and proactively facilitate access to treatment, determination of SVR, and follow-up care.

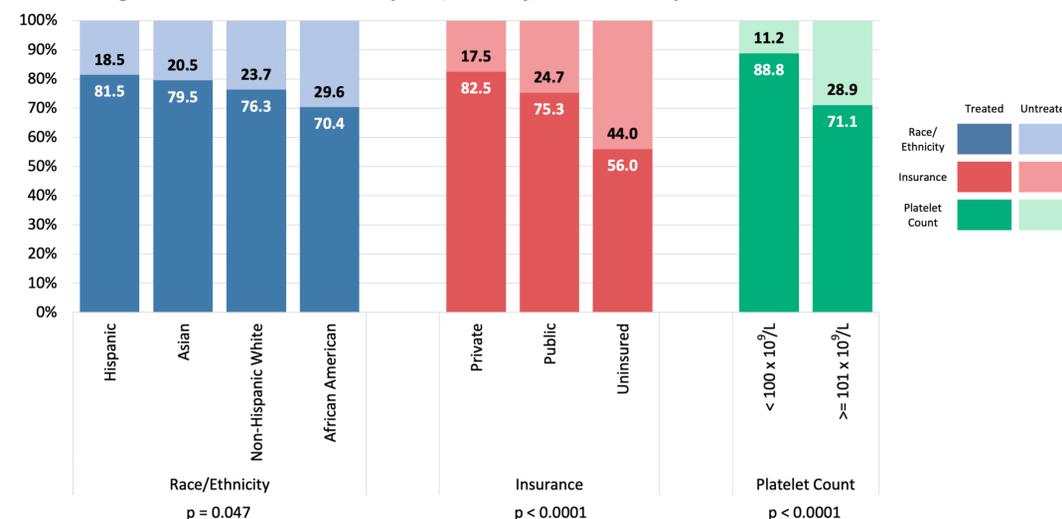
## References

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Figure 1. HCV treatment rates by race/ethnicity, insurance and platelet count



\*p-values based on multivariable model controlling for age, sex, race/ethnicity, language, platelet count, primary care visits, hepatology visits, health insurance, substance use disorder, obesity, depression, diabetes, and HIV/AIDS