# NETWORK-BASED RECRUITMENT FOR HEPATITIS C THERAPY AMONG PEOPLE WHO INJECT DRUGS

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## Introduction

- People who inject drugs (PWID) have a high prevalence of Hepatitis C Virus (HCV) infection.
- PWID face many barriers to testing and linkage to care for HCV, in addition to being at high risk for reinfection after HCV treatment.
- HCV treatment models based on an individual's drug use network have the potential to accelerate HCV elimination through increased rates of treatment uptake and reduced rates of reinfection within injection networks.

***Study Aim***

- To examine the feasibility of using a network-based approach to recruit PWID for HCV testing and subsequent treatment.

## Methods

***Study Population***

- HCV antibody positive persons (Egos) who reported recent (within 1 year of enrollment) injection drug use with another person were recruited in an urban infectious diseases clinic.

***Study Procedures***

- Egos received rapid testing for HCV and HIV, provided blood samples, were offered HCV linkage to care and completed detailed interviewer administered egocentric network surveys in which participants enumerated all network members including injection partners.
- Egos received a brief intervention which included health information about HCV and its treatment. They were then asked to discuss HCV treatment with their networks.
- Using a respondent-driven sampling (RDS) framework, initial Egos (seeds) were asked to recruit the specific injection drug network members (Alters) who they had enumerated in their survey.
- Recruited Alters could then become secondary Egos and recruit their own reported Alters.
- For each Alter who presented for evaluation, Egos were paid $10.

***Outcomes***

- Successful recruitment of at least one drug use Alter by An Ego
- Progress through the HCV care continuum of Egos and Alters with chronic HCV infection.

***Analyses***

- Logistic regression analyses were conducted using generalized estimating equations (GEE) clustered on primary Egos to assess for factors associated with recruitment of at least one drug using network member.
- Factors significant at the level of P<=0.10 in the univariable analyses were included in the multivariable model.
- Analyses were conducted in STATA and graphics were created in R Studio.

## Results

- Between January 2018 and January 2019, 37 initial Egos (seeds) were recruited, 20 (55%) of which went on to recruit 73 Alters.
- 64 (87%) of recruited Alters were HCV antibody positive and invited to become Egos. One alter did not complete network inventory.
- Overall 37 (37%) of Egos recruited at least 1 Alter.

**Figure 1: Number of Network Members (Alters) Recruited by Egos**

| 64 Egos | 20 Egos | 8 Egos | 6 Egos | 1 Ego | 1 Ego |
|---|---|---|---|---|---|
| ⬇ | ⬇ | ⬇ | ⬇ | ⬇ | ⬇ |
| 0 Alters | 1 Alter | 2 Alters | 3 Alters | 4 Alters | 5 Alters |

**Table 1: Characteristics of Egos**

| Characteristic | N=100 |
|---|---|
| Age, median (IQR) | 53.0 (44.0-57.0) |
| Black race | 71 (71%) |
| Male sex | 74 (74%) |
| High school education or higher | 37 (37%) |
| Homeless | 50 (50%) |
| Monthly income ($), median (IQR) | 732.5 (400-1000) |
| Unemployed | 86 (86%) |
| Live in Baltimore | 95 (95%) |
| Ever been incarcerated | 96 (96%) |
| Lifetime incarceration, median (IQR) | 48 (12-180) |
| Anti-HCV +/ RNA + | 85 (85%) |
| Anti-HCV +/ RNA - | 15 (15%) |
| HIV infected | 25 (25%) |
| Previous HCV treatment | 33 (33%) |
| Years injecting, median (IQR) | 28 (16-38) |
| Daily or more injection drug use | 47 (47%) |
| Network density, mean (SD) | 0.67 (0.28) |
| Number of network members, mean (SD) | 7.6 (3.8) |
| Number of drug network members, mean (SD) | 3.5 (2.4) |
| Average network age, median (IQR) | 50.2 (43.7-55.9) |
| Average drug network age, median (IQR) | 49.5 (39.7-55.0) |
| Average number of years known drug network members, median (IQR) | 13 (4.0-22.0) |
| Proportion of drug network | |
| Black, mean (SD) | 0.7 (0.4) |
| Male, mean (SD) | 0.7 (0.3) |
| HCV infected, mean (SD) | 0.5 (0.4) |
| HIV infected, mean (SD) | 0.1 (0.3) |
| Sex partners, mean (SD) | 0.1 (0.3) |
| Family, mean (SD) | 0.1 (0.2) |
| Not on good terms with, mean (SD) | 0.4 (0.5) |

**Figure 2: Recruitment Networks**

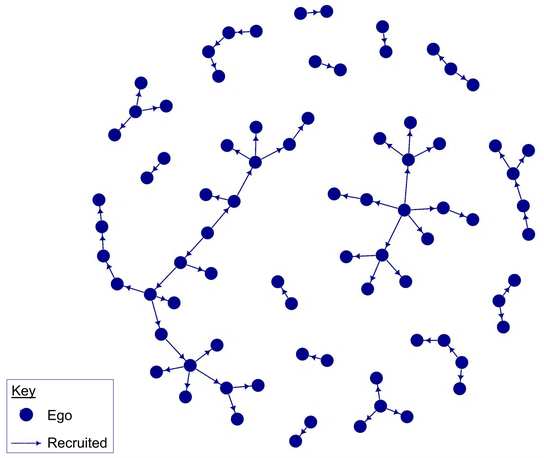


**Figure 3: Progress of 86 PWID with chronic HCV through the HCV care continuum**

| Reasons HCV appointment not scheduled | N=35 |
|---|---|
| No health insurance or insurance not accepted | 5 |
| Referral required to see HCV provider | 21 |
| Patient declined HCV linkage | 6 |
| Competing health issues | 2 |
| Deceased | 1 |

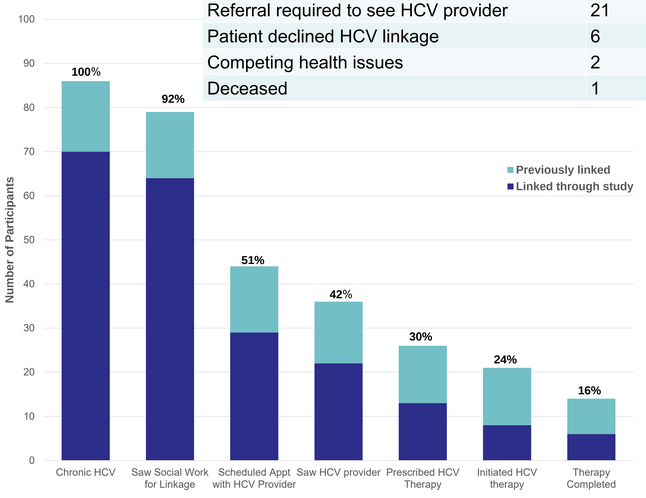


**Table 2: Factors Associated with Recruitment of at Least One Injection Drug Network Member**

| Characteristic | Univariable OR (95% CI) | Multivariable OR (95% CI) |
|---|---|---|
| Age | 1.03 (0.99, 1.07) | - |
| Black race | 0.88 (0.41, 1.88) | - |
| Male sex | 1.22 (0.43, 3.50) | 1.10 (0.39, 3.12) |
| HIV infected | 1.38 (0.61, 3.10) | - |
| Previous HCV treatment | **2.43 (1.10, 5.37)** | **2.80 (1.01, 7.7)** |
| Daily or more injection drug use | 1.73 (0.88, 3.41) | **2.38 (1.04, 5.47)** |
| Network density | 0.64 (0.24, 1.66) | - |
| Number of drug network members | **1.24 (1.02, 1.49)** | **1.20 (1.01, 1.42)** |
| Proportion of drug network | | |
| Black | 1.38 (0.53, 3.61) | - |
| Male | 1.75 (0.55, 5.55) | - |
| HCV infected | 1.47 (0.54, 3.98) | - |
| HIV infected | 1.75 (0.49, 6.28) | - |
| Sex partners | 1.67 (0.42, 6.70) | - |
| Family | 7.19 (0.47, 109.09) | - |

## Summary

- PWID are able to provide systems navigation to their network members for linkage to HCV testing and care
- Despite overcoming the hurdle of presenting for HCV testing at an infectious disease clinic, several barriers remain to HCV treatment initiation
  - The insurance requirement for a referral prior to specialty evaluation was a major barrier to HCV care provision
- PWID with larger drug use networks, high frequency of injection drug use and previous HCV treatment may be particularly effective at recruiting their drug using network members for HCV testing and linkage to care.

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