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Community Reach: Community-Based Screening Program for Hepatitis C Among People Who Use Drugs, Arizona

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Abstract

Introduction: Efforts to eliminate hepatitis C are hampered by the inability to reach communities with screening opportunities, especially people who use drugs. The purpose of this study is to evaluate the feasibility and impact of a community-based hepatitis C screening program for people who use drugs in Arizona.

Methods: This study is a secondary analysis of hepatitis C screening and participant survey data gathered from July 18, 2019 through March 23, 2020. The primary outcome measure was a reactive HCV test. The survey measured demographics in an open-ended manner, presenting an array of response options allowing participants to self-define their identities. The analysis was conducted in 2021.

Results: The sample included 541 people from 12 of Arizona's 15 counties. Over half of the sample (50.8%) reported ever injecting drugs and 21% of the participants were reactive for HCV.

Conclusions: Community-based HCV screening among people who use drugs by harm reduction organizations will significantly assist public health efforts to identify people in need of curative HCV treatment early and within supportive environments to address it.

Keywords: Hepatitis C, Community-based Screening , Harm Reduction, Drug User Health, Epidemiology.

Introduction

The COVID-19 pandemic intensified the syndemic of overdose, hepatitis C infection (HCV) and human immunodeficiency virus infection (HIV) in the United States [1] in part because screening and treatment for HCV decreased during this time

[2,3]. While there is no vaccine against HCV, oral curative treatment has been available since 2014 [4]. Some U.S. states are strengthening systems and policies to eliminate HCV in their communities [5] in response to HCV outbreaks in at least 30 states [6].

The rate of acute HCV in the U.S. is about 1.0 cases/100,000 population [7]. This rate has been increasing since 2013, with higher rates (2.8 cases/100,000 and 2.3 cases/100,000) among people aged 20-29 years and 30-39 years, respectively [6]. Not all populations are affected equally by HCV. In rural areas, the HCV incidence among people 30 years of age or younger is twice that of their urban peers [8]. HCV testing and linkage to treatment has been suboptimal for communities of color [9].

There are several key challenges to HCV elimination. On the individual level, there are low levels of HCV testing and treatment awareness among populations that need it most [10, 11]. An important social-level barrier is healthcare provider discrimination against people who use drugs (PWUD) [12]. Structural or systems-level barriers include policies requiring repeated drug testing to document multiple consecutive weeks of total abstinence from all substances before prescribing treatment [13], the exorbitant price of curative treatment, the requirement for specialist engagement for care, and state laws that criminalize syringe possession and/or prohibit syringe services programs (SSPs) [14]. SSPs have responded to the need for sterile syringes, but the 343 SSPs and countless "underground" programs across the U.S. [15] cannot, alone, reduce HCV due to legal barriers, limited funding, and limited geographic coverage [16, 17, 18]. Even as more states officially allow the sale of syringes without a prescription, the ability to successfully purchase syringes at pharmacies without experiencing stigma is uncertain across the country [19, 20]. These multilevel challenges to HCV elimination are compounded by variable federal funding to states for HCV surveillance and treatment, variability in Medicaid expansion and coverage by states, and perennial underfunding of state public health efforts by their own governments [21]. These challenges result in a systemic paucity of relationships with and educational outreach to the population currently at greatest risk for HCV: people who inject drugs (PWID).

Despite the aforementioned challenges, significant efforts have been made by county health departments, community-based organizations and SSPs to lower HCV infection rates [22]. However, most of these efforts have occurred in states and cities where SSPs have been legalized for several years or even decades [23]. In Arizona, syringe possession was decriminalized only recently (2021) [24]. This change reflects a growing understanding in Arizona that there is significant need for structural change to improve the health of those who inject drugs. This shift is important because in 2016, the Centers for Disease Control and Prevention (CDC) identified Arizona's Mohave County as being vulnerable to an HCV or HIV outbreak[25].

Any elimination effort requires robust health surveillance, and HCV elimination is no exception. Unfortunately, since 2009, the state of Arizona reduced its investment in the HCV program, thus shifting the funding burden to federal dollars. This was in the wake of the recession (2008). Now that financially austere times have change and even now as Arizona has seen a landfall of funding and reinvestment financing to the state [26], the Arizona legislature has not reinstated their prior investment in HCV. As a result, there is a 12-year gap in HCV incidence and prevalence data for the state of Arizona [27]. Hep Free AZ, the newly initiated effort to plan for HCV elimination in Arizona, is already hampered by this dearth of data [28].

Community-based screening for HCV has been found highly acceptable when a rapid test requiring no more than 20 minutes is used, and especially when administered by community-based organizations serving populations who use drugs [29]. In an effort to increase HCV testing, Sonoran Prevention Works (SPW), Arizona's only statewide harm reduction organization, evaluated its community-based HCV screening program; assessing its feasibility and acceptability in community settings among its primary clients: people who use drugs. This paper reports HCV burden in this population through a statewide point-in-time screening program implemented by SPW.

Methods

The HCV screening program implemented by SPW occurred throughout Arizona, and included the following urban and rural locations: Tucson and Yuma (urban/rural), Phoenix (urban), Prescott (rural), and Kingman (rural). Screening was conducted from July 18, 2019 through March 23, 2020. Screening venues included public community-based settings, pop-up events in collaboration with SPW's community partners, and walk-ins at SPW's office locations. Using these events as screening opportunities was thought to facilitate screening uptake, as the community of people who use drugs has known the SPW organization for years as a provider of services for them.

Screening eligibility criteria included being at least 18 years of age, living in Arizona at the time of screening, and self-identifying as a person who uses drugs (PWUD). HCV screening was performed using a rapid, point-of-care, qualitative immunoassay (OraSure Technologies, 2012). Purchase of test kits and supplies were funded by the State Targeted Response and State Opioid Response grants.

SPW's staff performed testing and collected data from participants using a self-administered survey tool which participants completed during the 20-minute timeframe required by the rapid HCV test kit. The survey included 11 items measuring intravenous (IV) drug use history, HIV and HCV screening history, date of birth, gender, race, and ZIP code. Participation was voluntary, and those completing the screening and survey received a $10 gift card from retailers like Wal-Mart and Fry's grocery chain. The results reported here are derived from secondary data analysis of selected testing outcomes (HCV) and survey items. A University of Arizona institutional review board provided oversight for

this study.

For this analysis, outcome measures were intentionally selected to be relatively unencumbered by missing data and/or survey skip patterns which obviated the need for some respondents to answer particular questions. The survey measured demographics in an open-ended manner, presenting an array of response options allowing participants to self-define their identities.

The initial dataset was comprised of 566 people. The final sample of 541 people remained after removing one participant who did not meet the age eligibility criterion, as well as participants with incomplete or invalid HCV test results. In order to determine that those excluded were not systematically different than those retained, we examined the demographics and IV drug use histories of those excluded. Excluded individuals were less likely to be white and more likely to have IV drug use history than those retained.

Respondents were asked to report their ZIP code of residence, which was recoded into counties to better understand the prevalence of positive HCV screens. We also reduced the categories of self-reported race into categories reflecting those used by the U.S. Substance Abuse and Mental Health Services Administration (SAMHSA). This was done in part to increase cell size for analysis.

Categorical variables were transformed into dichotomous (yes/no) dummy variables to assure sufficient cell size for bivariate analysis. Bivariate tests of association were performed using Pearson's chi-square test to assess the association with HCV reactivity, the key outcome variable, unless small cells dictated that a Fisher's exact test was more appropriate. Throughout the analyses, significance was determined by p-values less than 0.05. All analyses were performed in SPSS version 27 (IBM Corp., Aramonk, NY, USA).

Results

The sample included 541 people from 12 of Arizona's 15 counties (Table 1). The vast majority of the sample (n=530, 97.9%) was comprised of cisgender-identified individuals. White people made up the majority (n=310, 57.3%) of the sample, but a number of other racial backgrounds were also represented, most prominently those who identified as Hispanic or Latinx (n=131, 24.2%). Over half of participant age groups (n=316, 58.4%) intersected with those identified by CDC as being at highest risk for HCV (ages 20-29 and 30-39 yrs) [30]. Among people in the sample, 50.8% (n=275) reported ever injecting drugs and 21% of the participants (n=114) were reactive for HCV. Also shown in Table 1, residents of Maricopa County (home to Phoenix, the 5th largest U.S. city) [31] comprised 38.3% (n=207) of the sample. This reflects the fact that Maricopa County's population constitutes 63.9% of Arizona's population [32]. Other counties with sizable representation included Yuma (n=98, 18.1%), Pima (n=80, 14.8%), and Yavapai (n=67, 12.4%).

As shown in Table 2, within-group HCV-reactive percentages were high across age groups, for cisgender males and cisgender females, for people who reported injection drug use history, and for all racial and ethnic groups with the exception of Asian participants. Age groups that were significantly associated with reactive HCV screening results included 18-24, 25-34, and 35-44. The 25-34 year age group had the highest within-group HCV reactivity (30.1%), but reactivity was only slightly lower than that in the 45-54 and 55-64 age groups. Cisgender male and cisgender female genders were both significantly associated with reactive HCV screening results, with cisgender males having the higher within-group HCV reactivity (25.9%). One-third of respondents who preferred not to answer the question about race had reactive HCV results, but this association did not reach significance. White race was significantly associated with HCV reactivity, with 25.2% of respondents having a reactive result. While the within-group HCV reactivity was considerably lower (10.7%), a significant association was also found between Hispanic or Latino race and HCV reactivity.

Both Yes and No responses to the injection drug use history question were significantly associated with HCV reactivity, but respondents who said Yes had a much higher within-group HCV reactivity (35.6%) than those who said No (5.8%). Significant bivariate associations between county in which HCV screening was conducted and HCV reactivity were found for Maricopa, Yuma, and Gila Counties. Due to a small number of respondents in Gila County, none of whom had reactive HCV results, the significant association found there is regarded as spurious/artifactual. In Maricopa County, 28.5% of respondents were HCV-reactive, as were 12.2% of Yuma County respondents. Notably high HCV reactivity was also found among participants tested in Cochise, Yavapai, and Mohave Counties, but these associations did not reach significance (see Table 3).

Discussion

Findings from this study indicate that community-based HCV screening by a statewide harm reduction organization in Arizona is an effective way to identify community HCV burden and to lay the ground work for curative treatment access. This observation coincides with other studies which demonstrate that targeted screening in populations that need it most are helpful to advancing public health goals for hepatitis C reduction [33, 34, 35]. For Arizona, where such screenings had never before been implemented in such scale in the population of PWUD, a demonstration project such as this indicates not only effectiveness as previously discussed but feasibility to implement screening throughout the state in community settings. HCV reactivity rates in this study population far exceeded the 10% reported for community screenings in 2016 by the state's department of health, the latest report available [36].

Findings indicate there are several important factors contributing to screening acceptance and outcomes. First and foremost is the trust that SPW and its partners have with PWUD in Arizona. Trust is a significant issue when healthcare

Table 1: Sample characteristics for community-based hepatitis C screening among people who use drugs in Arizona, 2019-2020 (n=541)

Category	n	%
Gender Identity		
Cisgender Female	275	50.8
Cisgender Male	255	47.1
Trans and Non-Binary	8	1.5
Prefer not to answer	3	0.6
Age (in years)		
18-24	66	12.2
25-34	127	23.5
35-44	123	22.7
45-54	98	18.1
55-64	64	11.8
65+	24	4.4
No response	39	7.2
Race and Ethnicity		
White	310	57.3
Hispanic or Latino	131	24.2
Black or African American	29	5.4
American Indian or Alaskan Native	28	5.2
Asian	4	0.7
Persons Reporting Two or More Races	27	5.0
Prefer not to answer	12	2.2
County Where Screened		
Maricopa	207	38.3
Yuma	98	18.1
Pima	80	14.8
Yavapai	67	12.4
Mohave	47	8.7
Pinal	17	3.1
Gila	15	2.8
Cochise	3	0.6
Navajo	3	0.6
Santa Cruz	2	0.4
Coconino	1	0.2
La Paz	1	0.2

Table 2: Bivariate associations between HCV reactive screening result and selected demographics, Arizona 2019-2020 (N=114)

Age group	Frequency	Within-Group Percent reactive	Bivariate association statistically significant (p<0.05)	p-value
18-24	5	7.6%	*	0.004
25-34	18	14.2%	*	0.029
35-44	37	30.1%	*	0.005
45-54	25	25.5%		0.234
55-64	17	26.6%		0.251
65+	4	16.7%		0.588
No response	8	20.5%		0.929
Gender				
Cisgender Female	47	17.1%	*	0.021
Cisgender Male	66	25.9%	*	0.010
Trans and Non-Binary	0	0.0%		0.214†
Prefer not to answer	1	33.3%		0.509†
Race				
White	78	25.2%	*	0.007
Hispanic or Latino	14	10.7%	*	0.001
Black or African American	4	13.8%		0.323
American Indian or Alaskan Native	8	28.9%		0.318
Asian	0	0.0%		0.584†
Persons Reporting Two or More Races	6	22.2%		0.880
Prefer not to answer	4	33.3%		0.289†

*Bivariate association statistically significant (p<0.05). All tests for significance performed using Pearson's chi-square test, unless marked with †. Lines with † were tested using Fisher's exact test.

Table 3: Bivariate associations between HCV reactive screening result, injection drug use history and county, Arizona 2019-2020 (N=114)

Ever injected drugs	Frequency	Within-Group Percent reactive	Bivariate association statistically significant (p<0.05)	p-value
Yes	98	35.6%	*	<0.001
No	15	5.8%	*	<0.001
Unsure	1	14.3%		1.000†
County where screened				
Maricopa	59	28.5%	*	0.001
Yuma	12	12.2%	*	0.018
Pima	12	15.0%		0.149
Yavapai	18	26.9%		0.214
Mohave	10	21.3%		0.971
Pinal	2	11.8%		0.545†
Gila	0	0.0%	*	0.049†
Cochise	1	33.3%		0.509†
Navajo	0	0.0%		1.000†
Santa Cruz	0	0.0%		1.000†
Coconino	0	0.0%		1.000†
La Paz	0	0.0%		1.000†

*Bivariate association statistically significant (p<0.05). All tests for significance performed using Pearson's chi-square test, unless marked with †. Lines with † were tested using Fisher's exact test.

access by PWUD in Arizona is rife with stigma [12]. Second, this particular organization operates throughout the state, and therefore the reach and screening implementation standardization likely meant there was higher feasibility to conduct such screening. Finally, the focus on those who are at greatest risk for HCV exposure means that the screening efforts will provide opportunities for client support and education, as well as navigation for confirmatory testing and curative treatment as needed.

Community-based screening efforts are an essential piece of the puzzle in solving the problem of disproportionately high HCV prevalence in PWID. By demonstrating that the current data is not reflecting communities in which HCV is most prevalent, we can now advocate for increased screening resources and pathways to curative treatment for those communities.

An important implication of these findings is the increase of population-level data for assessment of community impact. This information will likely increase community-based access to resources for HCV prevention and testing; and will help to make the case for more community-based provision of diagnosis and cure. Just because people are screened by those they trust, does not mean that the path toward diagnosis and curative treatment will be easy or even non-stigmatizing. Therefore, community-based solutions created by and for people who use drugs will likely result in positive outcomes for HCV elimination and better drug user health outcomes.

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