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A Pilot Study of Rapid Hepatitis C Testing in Probation and Parole Populations in Rhode Island

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Abstract

Hepatitis C virus (HCV) affects between five and seven million individuals in the United States and chronic infection can lead to liver disease, cirrhosis, and hepatocellular carcinoma. Probation/parole offices are a novel setting for rapid HCV testing, providing outreach to populations at increased risk for HCV infection and/or transmitting HCV to others. While some correctional facilities offer HCV testing, many individuals who present to probation/parole offices are never or briefly incarcerated and may not access medical services. We conducted a rapid HCV testing pilot at probation/parole offices in Rhode Island. Overall, 130 people accepted rapid HCV testing, of whom 12 had reactive tests. Only four of these individuals presented to a community-based clinic for confirmatory testing, despite being offered a monetary incentive. Identifying and addressing barriers to HCV confirmatory testing and follow-up care is critical to increasing the uptake of HCV care and treatment in this vulnerable population.

Keywords

HCV; community corrections; criminal justice; drug use

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Hepatitis C virus (HCV) infection is estimated to affect between five and seven million people in the United States.[1] An important cause of morbidity and mortality, 75%-85% of HCV infections result in chronic infection leading to liver disease, cirrhosis, and hepatocellular carcinoma.[2] While correctional populations bear a disproportionate burden of HCV infection,[1] HCV testing and prevention have largely been ignored among community correction (i.e., probation and parole) populations.[3,4,5] In contrast to jail and prison populations, individuals on probation and/or parole have more opportunities to engage in HCV risk-related behaviors,[4,6] such as injection drug use.[7,8] Risk of HCV is also magnified among this population because of poverty,[7] unemployment,[9] lack of adequate health care,[9] homelessness,[8] sharing of injection equipment,[9] and untreated mental illness.[4] Additionally, given the new advances in HCV therapy with direct-acting antiviral agents, opportunities for expanded HCV testing, and connection to care in the community are increasingly important to reach those individuals disproportionately affected by HCV infection.[10]

Despite the high burden of disease and increased risk for HCV infection among people under community supervision, using probation and parole offices as a venue to conduct HCV testing and deliver prevention services has not been explored. We conducted a pilot study of rapid HCV testing including the use of a pre-test educational video among people under community supervision at Probation and Parole offices in Rhode Island. In previous work examining rapid HCV testing among people being released from correctional facilities in Rhode Island, we demonstrated a high prevalence of HCV infection among people with previously unknown HCV serostatus. Among people identified with chronic HCV infection, a small proportion successfully linked to a community HCV provider following release.[11] Our overall research aim for this study was to assess the feasibility and acceptability of rapid HCV testing within a community corrections setting. Additionally, we attempted to improve linkage to care by providing an escalating monetary incentive with each step in the continuum of care. Here we report the results of this pilot program including participant risk factors, pre- and post- video HCV knowledge, rapid HCV test results, confirmatory test results, and linkage to community care for people with confirmed HCV infection. All facets of this study were approved by the Miriam Hospital Institutional Review Board (IRB) and the Medical Research Advisory Group of the Rhode Island Department of Corrections.

Methods

Recruitment and eligibility.

The study was conducted in two Probation and Parole offices located in Rhode Island (Providence and Pawtucket). Research activities took place within designated spaces which ensured confidentiality for individual HCV testing and counseling. Probationers and parolees were informed of the research study by probation/parole staff members, when the study research assistant (RA) was onsite. Any client who wanted more information about the study was directed to the study RA for a detailed explanation of the study and eligibility screening. Potential participants were also recruited through advertisement at the Probation/ Parole offices and direct recruitment by the study RA. Eligibility criteria included being at least 18 years old, currently on either probation or parole, English speaking, able to provide informed consent, and self-reported HCV negative or unknown status.

Pre-video questionnaire and HCV video.

As part of a separate study, a HCV knowledge video was developed by several members of the investigator team. We took the opportunity to use this video in the current study to ascertain baseline knowledge of HCV risk, transmission and treatment among project participants and to evaluate changes in knowledge after viewing the video. While the purpose of the current study was not to evaluate the efficacy of the video, we felt that the video was a good tool to assess participant knowledge regarding HCV risk, transmission, and treatment relative to printed materials. Baseline HCV knowledge was assessed using an RA administered paper based questionnaire prior to viewing a brief (shorter than 10 minutes) pre-test video (available at www.prisonerhealth.org). This video was previously created, using actors, by the research team for educational purposes and for use during a study conducted by the research team at the Rhode Island Department of Corrections.[11] The content of the pre-test video included: information providing a general overview of HCV and modes of transmission; why it is important to get tested for HCV, who should be tested for HCV; explanation of the rapid HCV tests; explanation of the meaning of reactive and non-reactive rapid HCV test results; explanation of confirmatory testing procedures for people with a reactive rapid HCV test; and brief overview of HCV care and treatment.

Rapid HCV testing.

After completion of the video, participants were offered testing using the OraQuick® HCV Rapid Antibody Test [OraSure Technologies, Bethlehem, PA, USA] using a blood specimen obtained from a finger stick.

Risk factor questionnaire and post-video knowledge assessment.

While awaiting the rapid HCV test results, the participants completed a baseline assessment of demographic characteristics, health care access and utilization, criminal justice involvement, mental and physical health, hepatitis C testing history, HIV testing history, drug and alcohol using behaviors, sexual behaviors, additional hepatitis and transmission behaviors. Knowledge about HCV was assessed again after the participant viewed the video and completed the baseline assessment. Participants were compensated with a $20 cash incentive for completing the baseline assessment and pre- and post-HCV knowledge questions.

HCV test result delivery and referral to care.

Rapid HCV test results were delivered by the RA, who was certified in Rhode Island as a HIV Qualified Professional Test Counselor and had extensive experience with performing rapid HIV and HCV testing and delivering results. Participants with a non-reactive rapid test result received standardized post-test counseling from the RA that included HCV prevention information and participants were offered a brochure containing information on local resources for primary care and hepatitis C. Participants who received a reactive rapid test result received post-test counseling and were referred to the Immunology Center of the Miriam Hospital located in Providence, Rhode Island for HCV RNA confirmatory testing. The RA scheduled an appointment at the Immunology Center for delivery of the HCV confirmatory test results and an appointment was scheduled for an initial HCV evaluation

with a provider for participants who were confirmed to have chronic HCV infection. To support linkage to care, confirmatory testing was provided at no cost to the participants, $15 compensation was provided for completion of confirmatory testing, $20 compensation was provided to participants who returned to receive their confirmatory test results, and $25 was provided to participants who attended the initial HCV provider visit at the Immunology Center. All follow-up information regarding study visits was tracked by the RA through a participant log file. Any participant, who failed to show at the Immunology Center for confirmatory testing or subsequent follow-up visits, was periodically contacted at the phone number the participant provided at the initial baseline visit, in order to reengage the participant.

Data analysis.

Risk factor and demographic data was summarized. Means and standard deviations were calculated for continuous variables, and frequencies were used for categorical variables. To determine the short-term efficacy of pre-test video counseling in increasing HCV knowledge, we measured differences in HCV knowledge pre- and post-video. Responses to a series of HCV knowledge questions were calculated as a percent correct score. The same questions were used before and after the video. All analyses were conducted using STATA 13 (College Station, TX).

Results

Table 1 presents demographic characteristics of the study population. Overall, in our sample of 130 participants, 42% of the sample identified as White, non-Hispanic, 17% African American and 26% Hispanic. Eighty percent of the sample was male and about one-half (49%) were between the ages of 18–34. Most participants had a history of a previous conviction. Notably, the majority of respondents reported having health insurance (76%). While most respondents reported having been previously tested for HIV infection (90% of the total sample), many reported that they either had not been previously tested for HCV or didn’t know (Table 1).

Table 2 presents self-reported data, obtained during the baseline interview, on drug and alcohol use among the study participants. Participants most commonly reported using marijuana. Overall, 12 (9.2%) of the total sample had a reactive HCV rapid antibody test. Among individuals with a reactive HCV test result, 10 (83%) reported injection drug use in their lifetime. Among the 12 individuals with a reactive HCV test result, only four presented to the Immunology Center for confirmatory testing. Among these 12 participants, two were confirmed to have chronic HCV infection based positive HCV RNA nucleic acid testing. Neither of the participants with confirmed HCV infection returned to the Immunology Center for their scheduled appointment with a provider.

Table 3 depicts participants’ knowledge about HCV prevention, risk, and treatment prior to and after viewing an HCV informational video. Overall, both participants with negative and reactive HCV test results showed marked increase in knowledge of HCV infection. However, even though identical questions were used both pre and post-video to ascertain participants’ knowledge, many participants still did not provide correct responses to

important HCV-related questions. These included questions about the availability of an HCV vaccine to prevent HCV infection and the meaning of HCV antibody test (Table 3).

Discussion

To our knowledge, this is the first study to examine the feasibility of rapid HCV testing within a community supervision population. Our data suggest that HCV testing within the Probation/Parole setting is feasible and can potentially reach a population with relatively low HCV testing rates, yet high HCV prevalence compared to the general population. Thus, the stated goal of the study was met. Additionally, given the recent emphasis on decreasing the numbers of individuals incarcerated in the United States,[12] a community corrections-based HCV testing approach may facilitate broader HCV testing among a potentially high-risk population in the community.

Recent expansion of Medicaid through the Affordable Care Act (ACA) in many states offer individuals, especially those involved in the criminal justice system, unprecedented opportunities to receive health insurance.[13] However, expanded coverage for previously uninsured individuals does not mean automatic access to health care. Indeed, the majority of participants in our sample reported that they had health insurance, yet fewer than half reported having a regular health care provider. This is particularly relevant to infectious diseases, such as HCV, where numerous missed opportunities for testing, treatment, and prevention exist across the health care continuum. The overall HCV prevalence in our sample was 9%; seven of the 12 reactive HCV test results were among individuals who reported either not having been previously tested or did not know if they had been previously tested. Four of the remaining five participants with reactive HCV tests had been tested longer than one year prior to participating in the study, and the final participant with a reactive test had been tested in the emergency department within 12 months of study participation. None of these five participants were currently in HCV treatment at the time of the study. Thus, current testing efforts may be insufficient in reaching individuals who have chronic HCV infection. This is particularly important as current estimates indicate that more than half of individuals with HCV infection are unaware of their status.[14]

Despite being offered monetary incentives for both confirmatory testing and HCV linkage to care, most participants who had reactive HCV antibody tests did not follow up for subsequent testing and evaluation. While we cannot specifically ascertain why rates of confirmatory testing and linkage to HCV care were so low in our sample, these data suggest that monetary incentives alone may be insufficient to encourage individuals to receive confirmatory HCV testing and link to HCV care. One recent study has suggested that some criminal justice-involved individuals may be either unaware or unconcerned about long-term HCV-related consequences, perhaps due to apathy given the high HCV prevalence among injection drug-using populations.[15] One possible strategy to engage HCV antibody positive individuals in HCV confirmatory testing and/or linkage to HCV care may be the use of a patient navigator or a linkage to care coordinator. These approaches have shown promise in linking HCV antibody positive individuals to follow-up testing and care.[6,10] Similar types of interventions for HCV among criminal justice populations must be developed and implemented.

Additionally, HCV testing efforts must include appropriate education about HCV-related risks and treatment. In our sample, there was a sizable knowledge gap among participants with respect to important HCV-related information. Prior to viewing the HCV informational video, nearly one-half of participants incorrectly thought that HCV could be transmitted by kissing and more than one-half believed that there was a vaccine against HCV infection. There was also misunderstanding among participants about the meaning of a reactive HCV antibody test result. These data have important implications for treatment seeking and risk reduction behaviors. Importantly, while some knowledge gaps remained, the informational video led to overall increases in knowledge and may be a useful component of HCV testing programs. This suggests that coupling HCV testing with educational resources, such as an informational video, may increase awareness about HCV infection.

Limitations.

Given the small sample size of our population (N=130), our results may not be generalizable to the U.S. population of individuals involved in community corrections. Additionally, the number of individuals who had a reactive HCV antibody test was small (n=12) and so rates of confirmatory testing and linkage to HCV care may also not be generalizable to all HCV antibody positive individuals involved in community corrections. Furthermore, our study was conducted in probation/parole offices with sufficient space to allow for confidential HCV testing. Not all community corrections locations may be conducive for such testing and/or other health related activities.

Conclusion.

HCV testing efforts within criminal justice populations are insufficient and existing testing efforts are limited and only conducted within correctional facilities.[16] Community supervision populations are increasing in size in the U.S. and consequently represent a new opportunity to deliver HCV testing, prevention, and linkage to care services for a high-risk and underserved population.[17] Innovative approaches to support linkage to community HCV evaluation and treatment, and improve HCV knowledge, must be developed and implemented in conjunction with the expansion of community supervision testing programs.

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Table 1.

PARTICIPANT DEMOGRAPHIC CHARACTERISTICS

Demographic Characteristic (N=130)	N (%)
Age median (range)	32 (19–68)
Race/Ethnicity	
White, non-Hispanic	55 (42)
African American	22 (17)
Hispanic	34 (26)
Not reported	19 (15)
Gender	
Male	104 (80)
Female	25 (19)
Transgender	1
Level of Education	
Less than HS	42 (32)
HS or equivalent	55 (42)
Post HS	33 (25)
Employment Status	
Working	28 (22)
Disabled/Retired	36 (28)
Unemployed	57 (44)
Other (e.g. student, temporarily laid off, etc.)	9 (7)
Health Insurance Status	
Insured	101 (78)
Uninsured	28 (22)
Regular Medical Provider	
Yes	59 (45)
No	71 (55)
Drug or Alcohol Treatment in previous 12 months	
Yes	34 (26)
No	95 (73)
Previously tested for HCV	
Yes	52 (40)
No/Don’t know	78 (60)
Previously tested for HIV	
Yes	117 (90)
No	13 (10)
Number of Previous Convictions	
None	5 (4)
One	56 (43)
Two or more	68 (52)
Don’t know	1

Demographic Characteristic (N=130)	N (%)
Incarcerated for current offense	
Yes	97 (75)
No	32 (25)

Table 2.

DRUG USE

Drug Related Risk Factors—Self Reported	
Ever Injected Drugs?	
Yes	17 (13)
No	113 (87)
Previous 3 months any injection drug use	
Yes	6 (5)
No	13 (10)
N/A	111 (85)
Previous 3 months marijuana use	
Yes	55 (42)
No	75 (58)
Previous 3 months other opioids use	
Yes	6 (5)
No	124 (95)
Previous 3 months crack/cocaine use	
Yes	14 (11)
No	116 (89)

Table 3.

PRE- AND POST- VIDEO HCV KNOWLEDGE[a]

HCV Knowledge Item	Pre-Video, N (% correct)	Post-Video, N (% correct)
Infection with hepatitis C virus can cause the liver to stop working.	110 (85)	124 (96)
There is a vaccine to protect you against getting hepatitis C.	52 (40)	79 (61)
Hepatitis C infection may lead to liver cancer.	93 (72)	123 (95)
A person can get hepatitis C by sharing needles with someone who has hepatitis C.	127 (98)	129 (100)
A person can get hepatitis C by sharing cookers, cotton, or rinse-water with someone who has hepatitis C.	95 (74)	127 (98)
A person can get hepatitis C by kissing someone who has hepatitis C.	72 (56)	109 (84)
A person can get hepatitis C by shaking hands with someone who has hepatitis C.	121 (94)	125 (97)
A person can get hepatitis C by having sex with someone who has hepatitis C.	103 (80)	124 (96)
Everyone who tests positive on a hepatitis C screening test is currently infected with the virus.	69 (53)	99 (77)
Someone with hepatitis C can look and feel fine.	121 (94)	128 (99)
If someone tests positive on a rapid hepatitis C screening test, they need to have a follow-up blood test to see if they are still infected with the virus.	122 (95)	129 (100)
Someone infected with hepatitis C should only go see a doctor when they start feeling sick.	114 (88)	123 (95)
People infected with hepatitis C should stop drinking alcohol to protect their liver.	125 (97)	128 (99)
If someone is infected with hepatitis C, they may carry the virus all their life.	110 (85)	121 (94)

[a]Only 11 of 12 HCV reactive participants responded.