DAA treatment attitudes among people co-infected with HIV/HCV who delay or refuse HCV treatment

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Disclosures

Sarah Brothers and Merceditas Villanueva have no relevant financial interests to disclose.

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Learning Objectives

At the conclusion of this activity, participants will be able to:

1. Describe perspectives on DAA treatment among patients who are HIV/HCV co-infected.
2. Discuss the need for improved interventions to increase DAA treatment uptake, particularly for patients who are HIV/HCV co-infected.
3. Recognize strategies to reduce barriers to DAA treatment in people who are HIV/HCV co-infected.

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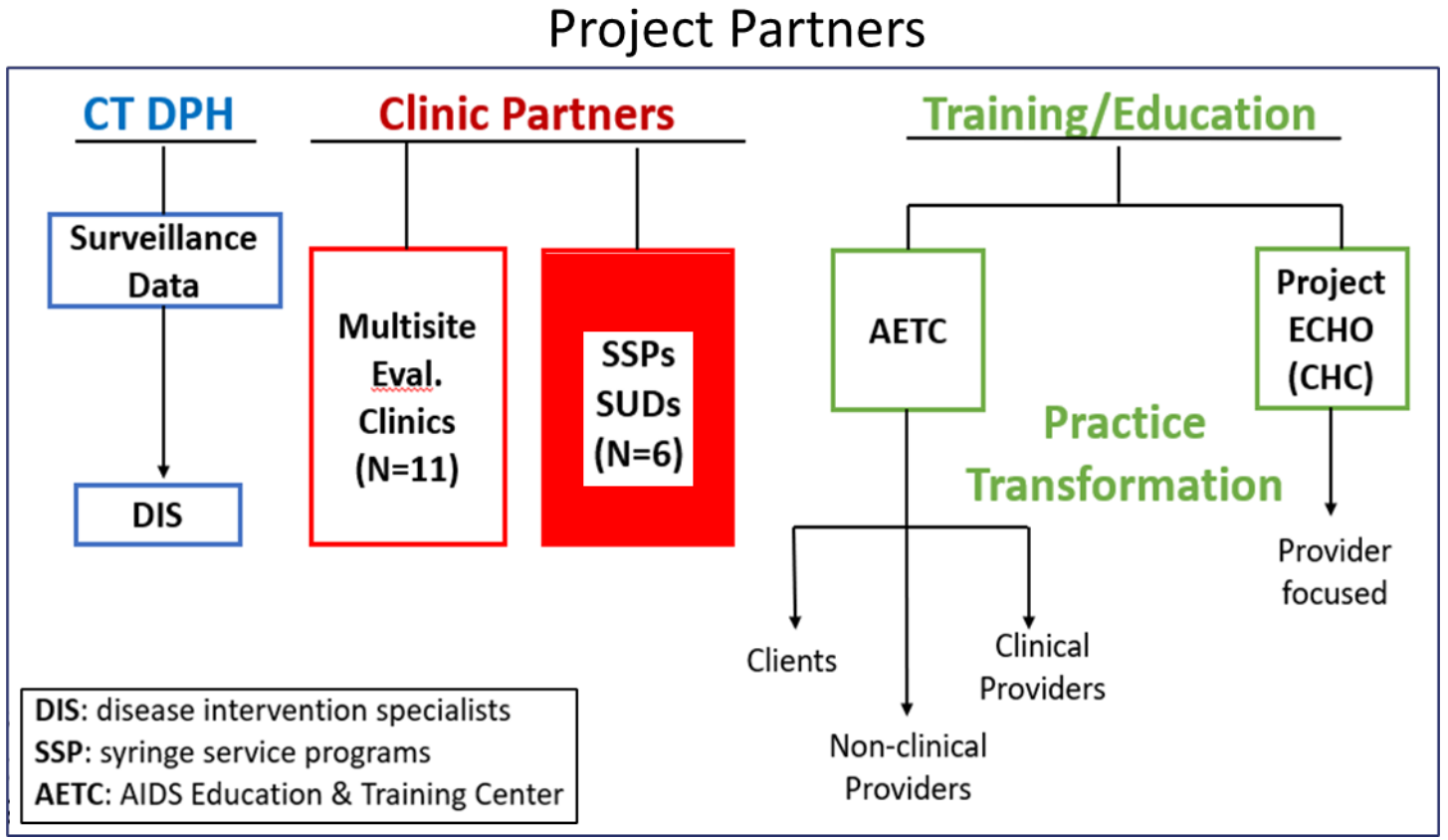
Overview

- Setting and impetus for the study
- Background on HIV/HCV co-infection and DAA treatment
- Methodology
- Findings
- Implications

Project ConnQuER HEP C: Yale University Coordinating Site

- HRSA SPNS (Special Project of National Significance) project: 3-year project
- "Curing Hepatitis C Among People of Color Living with HIV"
- Two recipients:
  - University of TX, San Antonio
  - Yale University
- GOAL: Create a HCV cascade of care in PLWH in CT



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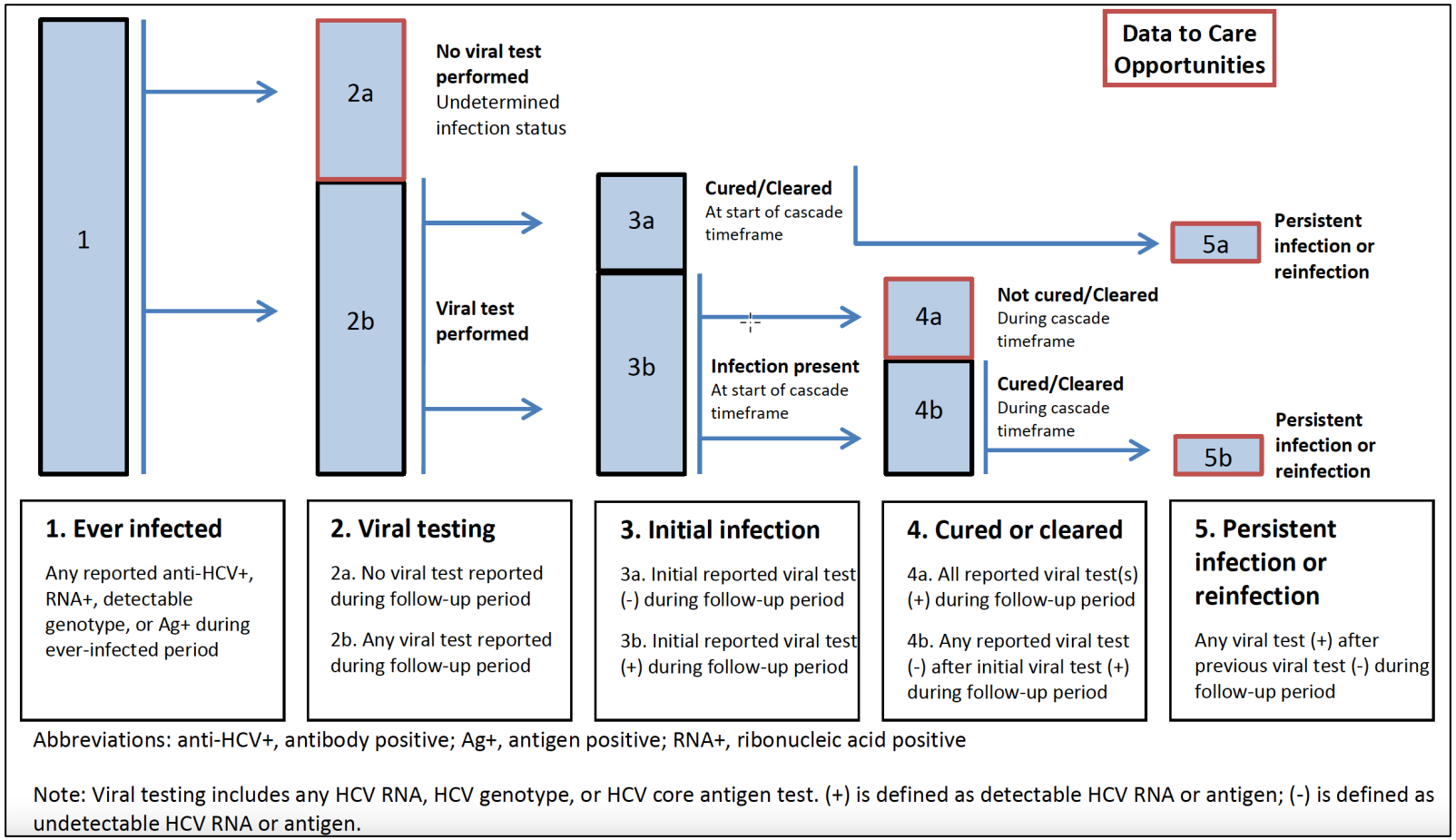
Project Goals

1. Cure Hepatitis C (HCV) in persons with HIV (PWH) in CT, particularly persons of color through improvements in the HCV cascade of care
2. Improve partnerships with key stakeholders
3. Improve surveillance mechanisms statewide for HIV/HCV coinfection
4. Create statewide HCV care cascade in HIV/HCV coinfected persons

Laboratory-Based HCV Virus Clearance Cascade



GAP: (4a)
Persons not cured

Define numerically

(Source: CDC. Laboratory-based Hepatitis C Virus Clearance Cascade: Program guidance for Local and State Health Departments, July 20, 2021)

Who has not achieved SVR? CT Data

(Prevalent PWH as of 12/31/2019, HCV lab data 1/1/2016-8/3/2020)

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Variables	Viral Testing N=1,256	No Viral Testing N=105	OR (95% CI)	Cured / Cleared N=336	Not Cured / Cleared N=529	OR (95% CI)
Birth Year	N (%)	N (%)		N (%)	N (%)	
Prior to 1966	852 (67.8%)	65 (61.9%)	1.30 (0.86-1.96)	222 (66.1%)	351 (66.4%)	0.99 (0.74-1.32)
1966 and later	404 (32.2%)	40 (38.1%)	Ref	114 (33.9%)	178 (33.6%)	Ref
Sex						
Male	874 (69.6%)	66 (62.9%)	1.35 (0.89-2.05)	239 (71.1%)	374 (70.7%)	1.02 (0.76-1.38)
Female	382 (30.4%)	39 (37.1%)	Ref	97 (28.9%)	155 (29.3%)	Ref
Race/Ethnicity[a,b]						
White	308 (24.9%)	31 (30.1%)	Ref	74 (22.2%)	116 (22.2%)	Ref
Black	418 (33.9%)	30 (29.1%)	1.40 (0.83-2.37)	108 (32.4%)	208 (39.8%)	0.81 (0.56-1.18)
Hispanic	509 (41.2%)	42 (40.8%)	1.22 (0.75-1.98)	151 (45.4%)	199 (38.0%)	1.19 (0.83-1.71)
HIV transmission category						
PWID	952 (75.8%)	60 (57.1%)	Ref	245 (72.9%)	399 (75.4%)	Ref
Heterosexual	151 (12.0%)	18 (17.1%)	0.53 (0.30-0.92)[d]	35 (10.4%)	55 (10.4%)	1.04 (0.66-1.63)
MSM	104 (8.3%)	20 (19.1%)	0.33 (0.19-0.57)[d]	21 (6.3%)	38 (7.2%)	0.90 (0.52-1.57)
MSM and PWID[c]	*	*	*	16 (4.8%)	20 (3.8%)	1.30 (0.66-2.56)
Other/Unknown	49 (3.9%)	7 (6.7%)	0.44 (0.19-1.02)	19 (5.6%)	17 (3.2%)	1.82 (0.93-3.57)
Most Recent HIV Viral Load Level						
Detectable (>200)	131 (10.4%)	12 (11.4%)	Ref	26 (7.7%)	78 (14.7%)	Ref
Undetectable (<200)	1,125 (89.6%)	93 (88.6%)	1.11 (0.59-2.08)	310 (92.3%)	451 (85.3%)	2.06 (1.29-3.29)[e]

a. Does not include 3 Other in cured/cleared and 6 Other in not cured/cleared
b. Does not include 60 Other in viral tested and 2 Other in no viral testing
c. MSM and PWID were added to PWID for the viral testing evaluation due to low cell size: (60 for viral tested and 2 for no viral testing)
d. P-value <0.0001
e. P-value=0.02

Persons with detectable **HIV VL had increased likelihood of not achieving cure/cleared status**

THIS ANALYSIS LACKS GRANULAR ASSESSMENT of patient level barriers

Wegener et al. Implementing a Surveillance-Based Approach to Create a Statewide Viral Clearance Cascade for Hepatitis C In Persons with HIV/HCV Co-infection in CT; submitted)

Background: HIV/HCV Coinfection

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Approximately 25% of people living with HIV (PLWH) are co-infected with hepatitis C (HCV) in the United States

Kim et al. 2013, Hernandez and Sherman 2011

HCV: Leading cause of liver-related morbidity and mortality

Ly et al. 2016, Ryerson et al. 2020, Zibbell et al. 2018

HIV/HCV co-infection: Accelerates liver disease progression and elevates liver-related mortality and mortality in general

Lin et al. 2017, Kaspar and Sterling 2017, Chen et al. 2019, Bica et al. 2001, Wise et al. 2008

Background: HIV/HCV co-infection

HCV infection increasing due to opioid epidemic

62- 80% of people who inject drugs (PWID) living with HIV are co-infected with HCV

Platt et al. 2016, Spradling et al. 2010, CDC 2021

Background: DAA Treatment

Highly effective (>95% cure rates), well tolerated, can be administered for short courses (8-12 weeks for most)

Soriano et al. 2013, Falade-Nwulia, et al. 2020

Equally effective for people with HIV/HCV co-infection as it is for people with HCV mono-infection

Osinusi et al. 2015, Cachay et al. 2015, Collins et al. 2018, Lim 2020

Background: DAA Treatment

Most people diagnosed with HCV are untreated

Reau et al. 2018, Dever et al. 2017, Zuckerman et al. 2018 Lin et al. 2017

Efforts to increase HCV treatment in persons with HIV/HCV co-infection have improved cure rates

However, there remains a treatment gap for people with HIV/HCV coinfection

Berenguer et al. 2017, Boerekamps et al. 2018, Doyle et al. 2021, Smit et al. 2021, Liu and Kao 2021, Rizk et al. 2019

Background: Research on DAA Treatment Barriers and Facilitators

Existing research primarily examines people with HCV mono-infection

Factors that influence DAA treatment uptake for people with HCV:

- Alcohol and drug use
- Homelessness
- Comorbidities
- Social support
- Knowledge of HCV symptoms and treatment
- provider relationships
- residual fear of treatment side effects from the pre-DAA interferon era of treatment

Amoako et al. 2021, Lin et al. 2017, Falade-Nwulia et al. 2020, Nápoles et al. 2019, Boglione et al. 2017, Crowley et al. 2018

Background: Research on DAA Treatment Barriers and Facilitators

Factors that influence DAA treatment uptake for people with HIV/HCV coinfection:

- Mental health disease
- Ongoing drug use
- Being non-white
- CD4<200
- Detectable HIV viral load

Research Question

What are the barriers and facilitators to DAA treatment for people coinfected with HIV/HCV who delay or refuse treatment?

Methods

Interviews:

- 21 people who had a confirmed HIV and HCV diagnosis and who delayed treatment for HCV for at least one year after diagnosis or had not consented to treatment
- 40-70 minutes in length
- Conducted via telephone due to COVID-19

Timeframe:

- April 2020- February 2021

Interview Domains:

- Participant characteristics and demographics, HIV and HCV diagnosis and treatment history, knowledge and perceptions of HCV disease and treatment, provider relationships, social support, religion, comorbidities, health and wellbeing, stigma, history of substance use, housing and employment, food insecurity, and transportation issues.

Setting for the Study

Patient recruitment:

Seven Urban Connecticut HIV clinics

- University-based or Federally Qualified Health Centers.
- Federal Ryan White funded
- Multi-disciplinary team approach with access to medical case managers and mental health and substance use providers in addition to Infectious Disease (ID)-trained HIV providers.
- Designated on-site ID providers with special training in HCV management provided HCV treatment.

Patients:

- Racial and ethnic minorities (African American and Latinx)
- HIV transmission risk factors: men having sex with men (MSM) and historically PWID.

Participant Characteristics

	DAA treatment last 12 months n=12	Untreated for HCV* n=9	Total N=21
Gender	n	n	n
Male	7	3	10
Female	5	6	11
Race/Ethnicity	n	n	n
Black/African American	7	3	10
Puerto Rican	1	4	5
White	3	2	5
Native American	1	0	1
Age	Mean	Mean	Mean
Range: 39 to 70 years	61	57	59
LGBTQ?	n	n	n
Yes	0	1	1
No	12	8	20

*At time of interview

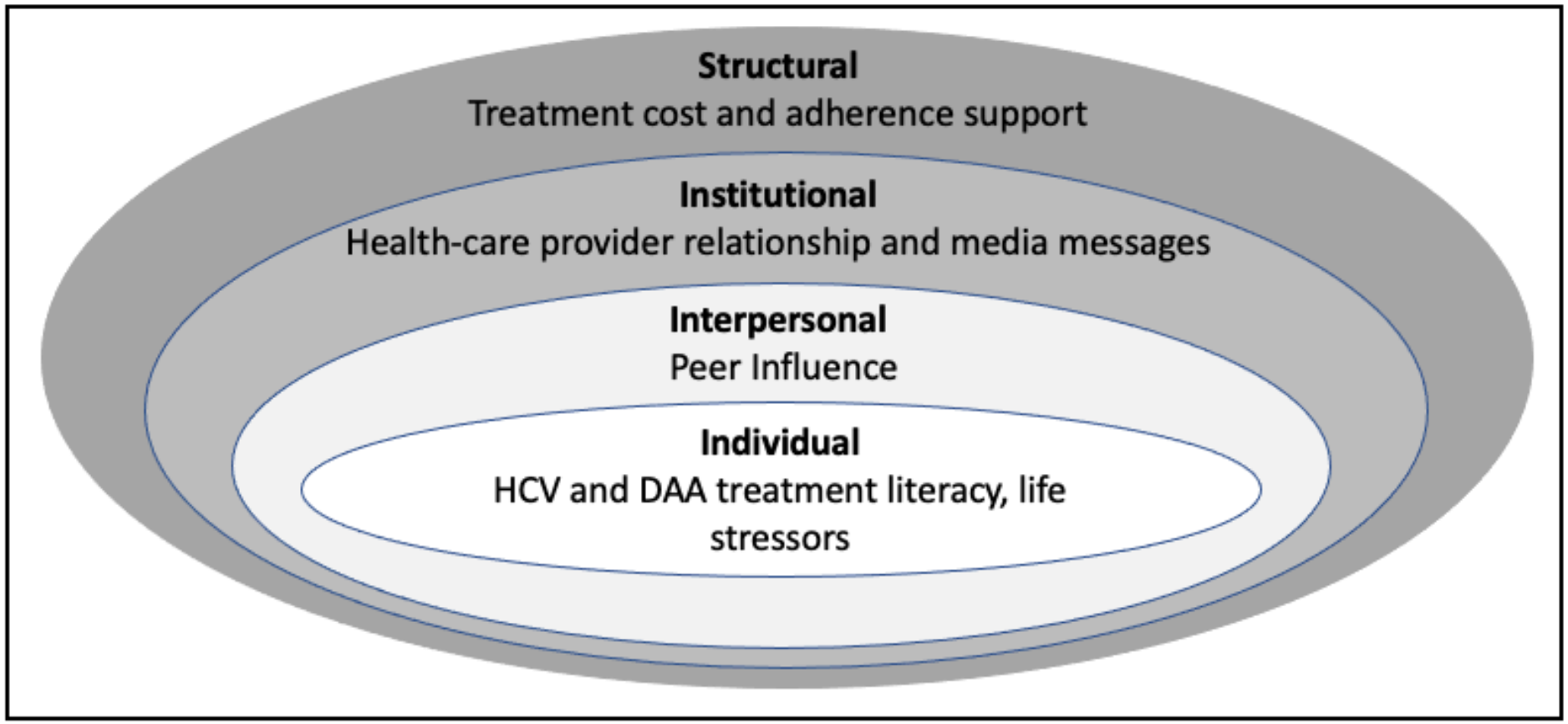
Participant Characteristics

	DAA treatment last 12 months n=12	Untreated for HCV* n=9	Total N=21
History of injection drug use?	n	n	n
Yes	11	4	15
No	1	5	6
Years since diagnosis	Median	Median	Median
HIV	26	23	25
HCV	14	16	15
Ever received interferon-based treatment?	n	n	n
Yes	1	0	1
No	11	9	20
Currently on antiretroviral HIV treatment?	n	n	n
Yes	12	8	20
No	0	1	1

*At time of interview

Modified Social-ecological Model

Modified social-ecological model for themes that influence DAA treatment decisions by people with HIV/HCV co-infection who delay or refuse treatment.



Themes: Individual Level Barriers Overview

Barriers:

Knowledge deficits of HCV disease and DAA treatment

- Belief HCV is relatively benign
- Fears of side effects
- Beliefs alcohol and substance use:
    - Decrease treatment efficacy
    - Make HCV infection inevitable

Complex life stressors

Individual Level Barriers
Knowledge Deficits

Knowledge deficits of HCV disease symptoms and severity

- I don't know what the symptoms are. Sluggish? I'm sometimes sluggish.

(Black Man, untreated)

Individual Level Barriers
Knowledge Deficits

- [I thought] hepatitis C was like benign, I didn't think it was really a problem, I thought it just came with the HIV.

(White Woman, completed treatment)

Individual Level Barriers Knowledge Deficits

Fears of side effects, particularly if previously experienced from ART or other medications

- The medication was not improving my health. If anything, I began deteriorating. So, once I started deteriorating, I was, like, "Well, look. Hold up. So, you turned around and you put me on the medicine, and this is happening? No, I'm going to go it on my own. You and your medication, keep that away from me." I'm real funny about medications, there's some things I won't take. Because I'm afraid of the side effects and I think you're trying to kill me.

(Black Man, completed treatment)

Individual Level Barriers
Alcohol and Substance Use

Beliefs DAA treatment required abstinence

- I couldn't stop drinking, didn't want to stop drinking, so I put it off.

(Black Woman, untreated)

Individual Level Barriers
Complex Life Stressors

- I didn't even think about it yet. I'm trying to get my HIV stuff under control. I guess I should [get treated for HCV], but I just need to get one thing under control at a time. Then I'll do the hepatitis thing.

(Black Woman, untreated)

Themes: Interpersonal Level Overview

Barriers:

Residual information received from peers about interferon's side effects and limited efficacy

Peer perceptions that HCV is benign

Peer perceptions that abstinence is required for DAA treatment

Facilitators:

Peer information about the ease and efficacy of DAA treatment

Interpersonal Level Barriers
Peer Information on Treatment

- By hearing all the side effects, I was just dissuaded against doing it. I was getting that information on the ground- on the street level, and my other information was coming from other providers. I did my research and found out how successful it is, but I had to do my research first. (Black Man, completed treatment)

Interpersonal Level Barriers Peer Information on HCV

- The hep was not priority for me. I didn't realize what it could do, and I just thought people lived with it. I knew people that had it and they were 70. So it, to me, it wasn't a big deal.

(Native American Woman, completed treatment)

Interpersonal Level Barriers
Peer Information on Active Use

- The only thing I know is what my friends have been telling me. They have taken the medication and they have stayed clean, and if I stay clean, they will cure me. It's only three months, and in three months, they take your blood and they check and hey, you don't got it. But if you go back and fool around again, you get it right back, the hepatitis C come right back.

(Puerto Rican Man, untreated)

Interpersonal Level Barriers
Peer Information on Active Use

- I heard people in my program and out in the street talking, whenever you take the pill for the hepatitis, you can't drink or nothing. You can't do drugs. If you drink or do drugs, you gonna get sick, a lot of people told me.

(Black Woman, completed treatment)

Interpersonal Level Facilitators Peer Information on DAA Treatment

- She asked me and I said, "Yeah, well I don't have it anymore." I kept telling her that. I said, "It's easy." Because she don't really like taking pills. I said, "All you got to do is take one pill a day, that's it. It won't be no big horse pill. It's just one pill you take every day and after eight or 12 weeks the worst is gone."

(Black Man, completed treatment)

Themes: Institutional Level Overview

Barriers

- Media advertisements
- Weak and transitory provider relationships
- Communication issues with providers, particularly about alcohol and substance use

Facilitators

- Stable, persistent, and supportive provider relationships

Institutional Level Barriers
Media

- All I knew was I kept seeing commercials on TV. “Oh, you can be at the beach. Oh, you'll be feeling chipper in a day.” I was, like, yeah, right. They're not telling you, “Oh you can be suffering from this. You can suffer that.” You telling me that I can be out horseback riding or mountain climbing and at the beach.

(Black Man, completed treatment)

Institutional Level Barriers
Transitory Provider Relationships

- I never saw that doctor again. I don't know what happened, I just know that he talked to me about it. I had a problem in that clinic, every month that I used to come to the clinic, every month was a different doctor. It was like the whole New Haven knew that I was HIV. So, that was bothering me.

(Puerto Rican man, untreated)

Institutional Level Barriers
Weak Provider Relationships

- He put me on a medicine that was making me sick, and I said, “Can’t you give me something else?” And all he said is, “You’re resourceful. You’ll find a way.” And that just kind of pissed me off, so I stopped going to him. I was out of care for a while.

(White Woman, completed treatment)

Institutional Level Barriers
Provider Communications on Active Use

- I was fine and that I don't have Hep C anymore, but to make sure that I don’t start drinking alcohol and stuff because it could return.

(Black Man, completed treatment)

Institutional Level Facilitators
Stable Supportive Provider Relationships

- The one I got now is the one that really convinced me to do it. She told me the long-term effect that it could have if I don't. And so I just stopped and thought about it. It took a little while. She suggested it the first time, I told her I would think about it, and I came back to see her maybe two more times. She said, "Have you made up your mind?" And I said, "No, but I'm going to do it anyway." It wasn't a whole lot of talking about it, but she was just telling me the good side about it and her side about it. And, because she's a straight-up lady I said, “Oh okay, fine.”

(Black Man, completed treatment)

Institutional Level Facilitators
Stable Supportive Provider Relationships

- I trust her opinion and her decision. She makes sure that my mental health medicine don't interfere with my HIV medicine. She said I could have a reaction if I take the wrong ones with the wrong one.

(Puerto Rican Man, completed treatment)

Themes: Structural Level Overview

Barriers

- Financial considerations

Facilitators

- Medication adherence support

Structural Level Barriers Treatment Cost

I just want to be where I'm stable and going to commit to it, because insurance will only pay for it once. So you mess it up, You don't get it again. The Hep C could kill me before the HIV would. I'm just procrastinating. I'm afraid that if I do it, and I don't do it right... I'm terrified of that.

(White Woman, untreated)

Structural Level Barriers Treatment Cost

- Each pill cost $1,100. If you know you're gonna keep fucking around, why you wasting all that money, man? You should leave that to somebody who really want to stay clean or somebody who got a baby daughter, baby boy, a beautiful girl, a companion, whatever. But if you know you're gonna fuck around, yo, keep fucking around, die.

(Puerto Rican Man, untreated)

Structural Level Facilitators Adherence Support

- At first I wasn't too sure about it [DAA treatment] because sometimes I'm not med adherent but I have a med box now so I'm good with everything. It's on timers. It goes off at 9:00 in the morning, 12:00 in the afternoon, 4:00 in the afternoon, and then 9:00 at night.

(White Woman, completed treatment)

Discussion

Multiple interactive themes on the individual, interpersonal, institutional, and structural levels influenced participant uptake of DAA treatment.

1) Individual level: DAA treatment and HCV disease literacy

2) Interpersonal level: information from peers

3) Institutional level: provider relationship and media

4) Structural level: treatment cost and support

Individual Level Barriers and Multi-Level Facilitators

Individual Level Barriers	Facilitators
• **Misconceptions about DAA treatment abstinence requirements**	• Increased provider literacy that substance use is not a contraindication for DAA treatment • Increased patient literacy on DAA treatment safety and efficacy during active substance use
• **Not prioritizing HCV treatment**	• Provider discussions about importance of HCV treatment
• **Fear of side effects and interactions**	• Provider discussions about DAA side effects and interactions

Interpersonal Level Barriers and Multi-Level Facilitators

Interpersonal Level Barriers	Facilitators
• **Peer-received information on interferon treatment**	• Peer-received information on DAA treatment • Provider-received information on differences between Interferon treatment and DAA treatment

Institutional Level Barriers and Multi-Level Facilitators

Institutional Level Barriers	Facilitators
• Transitory provider relationships	• Stable and trustworthy provider relationships with longitudinal discussions about benefits and side effects of DAA treatment
• Distrust of media messaging	• Provider discussions of DAA side effects and treatment efficacy

Structural Level Barriers and Multi-Level Facilitators

Structural Level Barriers	Facilitators
• **Treatment cost**	• Provider discussion that patient is deserving of DAA treatment
• **Adherence support needs**	• Implement adherence support such as directly observed therapy (DOT), automated reminders

Conclusions

Interventions:

- Increase DAA treatment knowledge
- Remove DAA treatment barriers for people who actively use substances
- Provide medication adherence support
- Encourage patients who've completed DAA treatment to talk with peers
- Center the needs and concerns of directly impacted persons when designing interventions

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