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Et al.

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INNOVATION HIGHLIGHT

Under One Roof – An Integrated Clinic for Substance Use Disorder and Viral Hepatitis/HIV Treatment

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Introduction: Integration of viral hepatitis/HIV care and substance use disorder (SUD) treatment has been shown to improve patient outcomes, but data are lacking in rural states like Maine. Our study objective was to assess the baseline characteristics and outcomes of patients with SUD who receive combined substance use and viral hepatitis/HIV treatment at a recently established "Bridge Program" in our rural state.

Methods: We conducted a retrospective chart review of patients enrolled in the Bridge Program between January 2020 and November 2021. We then performed a descriptive analysis of demographics, health characteristics, preventive services, and treatment outcomes.

Results: A total of 14 patients were enrolled in the Bridge Program, of which 13/14 (93%) had hepatitis C, and 3/14 (21%) had HIV. When indicated, 100% of participants received appropriate medication for addiction treatment (buprenorphine/naloxone or naltrexone), naloxone kits, and hepatitis A and B vaccinations. Among patients with hepatitis C, 12/13 (92%) started antiviral treatment, of which 10/12 (83%) either achieved treatment cure or are receiving ongoing treatment.

Discussion: Integrated care models can successfully treat SUD and HIV/viral hepatitis as co-occurring medical conditions. These models must consider approaches to reduce the number of visits and travel time required for optimal treatment, and enhance recovery by consistently prescribing evidence-based medication for SUD.

Conclusions: Our study shows how an integrated clinic model in a rural state can provide comprehensive care, including SUD treatment, naloxone prescribing, vaccinations, and, importantly, high rates of successful hepatitis C/HIV treatment.

Keywords: substance use disorder, alcohol use disorder, HIV, hepatitis C, harm reduction

Injection drug use, overdoses, and alcohol-related deaths are increasing, both nationally and in Maine. Between 2019 and 2020, drug overdoses increased by 31% nationally and by 33% in Maine.[1,2] Alcohol-related deaths also continue to rise, with a 25% national increase between 2019 and 2020.[3]

People with substance use disorder (SUD) have a high risk for developing viral hepatitis/HIV.[4] Co-occurring SUD with viral hepatitis or HIV is increasingly prevalent. In 2019, 1649 people were living with HIV in Maine.[5] Of those newly diagnosed with HIV, 33.3% were transmitted HIV by injection drug use.[5] According to a 2020 report by the Centers for Disease Control and Prevention, Maine now leads the nation in rates of acute infection with hepatitis C virus (HCV) and is second in rates of acute infection with hepatitis B virus (HBV).[6,7] In Maine, 41% of HCV and 43% of HBV infections were transmitted by injection drug use in 2019.[8,9] Historically, people with SUD and/or alcohol use disorder have struggled to access treatment due

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to lack of treatment facilities, health insurance coverage, stigma in health care, and geographical barriers. Maine is considered the most rural state in the United States, with more than 61% of the population living in a rural area.[10] Accessing health care can be challenging for people who must travel long distances.[11]

To address the need for low-barrier, integrated care for SUD and co-occurring viral hepatitis/HIV, the Bridge Program was established within an existing infectious disease clinic. The Bridge Program provides multidisciplinary care for patients with HIV, viral hepatitis, and cirrhosis throughout Maine. The clinic has a staff of 17 people (5 physicians, 2 nurse practitioners, 1 licensed clinical social worker, 4 registered nurses, 1 medical assistant, 2 administrative team members, and 2 pharmacy team members). Before the Bridge Program, all patients were informally assessed for SUD by a clinician.

The Bridge Program serves the identified need to engage people with SUD in treatment for their infectious complications, and the program is funded through the clinic's budget. Potential participants meet with a licensed clinical social worker who performs a behavioral health assessment; documents Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, criteria for SUD; and assesses if the patient would benefit from a higher level of care. The Bridge Program is explained to patients, and if they consent to the program, they sign a document that includes sharing their SUD treatment goals. They also complete a one-time National Institute on Drug Abuse questionnaire (https://nida.nih.gov/sites/default/files/pdf/nmassist.pdf). Urine drug screens are obtained at the first visit, although the decision to enroll in the program is not based on the results. At later visits, patients complete a questionnaire asking about cravings and dosing of their SUD medication(s). Participants in the Bridge Program start SUD treatment (ie, buprenorphine/naloxone for opioid use disorder; naltrexone and/or gabapentin for alcohol use disorder) and receive concurrent harm-reduction services, vaccinations for viral hepatitis if indicated, and counseling with a social worker if desired. For the first 4 weeks of buprenorphine treatment, patients are generally seen weekly. Thereafter, the frequency of their visits is determined based on need (often monthly), and telehealth options are available. People requiring more intensive treatment for SUD are referred to a higher level of care. Patients remain in the Bridge Program until they complete their viral hepatitis treatment, but people with cirrhosis and/or HIV can opt to remain in the program for longer. The purpose of this study was to evaluate patient treatment outcomes for SUD, infectious disease, and concurrent harm-reduction services within the Bridge Program.

METHODS

Setting and Participants

Participants included patients who enrolled in the Bridge Program between January 1, 2020, and November 1, 2021. Inclusion criteria for the Bridge Program included: patients at an infectious disease clinic serving patients with HIV/viral hepatitis (1053 unique patients and 2811 visits in 2021), diagnosis of viral hepatitis and/or HIV, history of opioid or alcohol use disorder, and medical stability (not requiring hospitalization for medical management of alcohol withdrawal or for concurrent medical condition). We followed the SQUIRE guidelines in reporting our evaluation of the Bridge Program.

Study Design

This study was a retrospective observational study. We collected demographic, prescription, toxicology, substance use characteristics, and infectious disease management data from electronic health records. The MaineHealth Institutional Review Board deemed this study non-research. We define SUD treatment as referral to a primary care physician who provides SUD treatment, or referral to an addiction specialist.

Statistical Analysis

Data were summarized using descriptive statistics. Categorical data are shown as count and percentage. Continuous data are shown as median [interquartile range]. All analyses were conducted using SPSS Statistical Software version 28 (IBM SPSS, Inc., Armonk, NY).

RESULTS

This evaluation included 14 participants. Participant demographic and clinical characteristics are summarized in Table 1. Most participants had HCV, and a minority were living with HIV. The most significant medical co-morbidities among participants included liver disease and chronic pain.

Table 1. Demographic and Clinical Characteristics of Patients Enrolled in the Bridge Program (N = 14)

Variable	Frequency
Time in Bridge Program, months, median [IQR]	4.2 [2.1-8.5]
Sex, No. (%)	
Female	2 (14.3)
Male	12 (85.7)
Comorbidities, No. (%)	
Hypertension	1 (7.1)
Mild liver disease	8 (57.1)
Moderate liver disease	3 (21.4)
Moderate or severe renal disease	1 (7.1)
Chronic pain	6 (42.9)
Mental health condition present, No. (%)	13 (93)
Mental health conditions, No. (%)	
Anxiety	10 (71.4)
Depression	8 (57.1)
Posttraumatic stress disorder	7 (50.0)
Bipolar disorder	3 (21.4)
Schizophrenia	2 (14.3)
Attention-deficit hyperactivity disorder	3 (21.4)
Prior suicide attempt, No. (%)	1 (7.1)
Substance use disorder, No. (%)	
Opioid use disorder	11 (78.6)
Alcohol use disorder	3 (21.4)
Stimulant use disorder	2 (14.3)
Polysubstance use disorder	3 (21.4)
Unhoused	
At the beginning of the Bridge Program, No. (%)	5 (35.7)
At the end of the Bridge Program, No. (%)	3 (21.4)
Previously incarcerated, No. (%)	6 (42.9)
Type of insurance, No. (%)	
Private	1 (7.1)
MaineCare	11 (78.6)
Medicare	2 (14.3)

Abbreviations: IQR, interquartile range.

Most participants also had co-occurring mental health diagnoses, including depression, anxiety, posttraumatic stress disorder, bipolar disorder, schizophrenia, and attention deficit hyperactivity disorder. Of the patients with mental health disorders, several had more than one such diagnosis. SUD type varied among participants, with the most common being opioid use disorder, followed by alcohol use disorder.

Table 2 summarizes services provided to participants. Participants received SUD treatment when indicated, as well as preventive services, including a prescription for a naloxone rescue kit, hepatitis A and B immunity testing, and vaccination when indicated. Most patients with HCV were successfully started onto antiviral treatment and achieved a sustained virologic response.

Table 2. Substance Use Characteristics and Treatment During the Bridge Program (N = 14)

Variable	Frequency, No. (%)
Positive results of first-available toxicology screen before Bridge Program	
Opioids	2 (14.3)
Alcohol	1 (7.1)
Cocaine	3 (21.4)
Methamphetamine	1 (7.1)
Cannabinoids	8 (57.1)
Other	5 (35.7)
MAT prescribed before Bridge program	2 (14.3)*
Type of MAT prescribed during Bridge program	
Buprenorphine/naloxone	11 (78.6)
Naltrexone	3 (21.4)
Other	1 (7.1)†
Discharged from Bridge program with MAT	10[1]/13(76.9)‡
Referred to addiction care after Bridge program	
Referred to primary care physician	10 (71.4)
Referred to addiction program	2 (14.3)

Abbreviations: MAT, medication for addiction treatment.
*Naltrexone (n=1); buprenorphine/naloxone (n=1)
†Other medication prescribed with naltrexone (n=1)
[1]Denominator (n=13) due to one person still actively receiving HCV treatment at the time of study completion
‡Naltrexone (n=1); buprenorphine/naloxone (n=9)

DISCUSSION

This program evaluation supports existing evidence that integrating SUD and viral hepatitis/HIV services can provide excellent treatment outcomes. Whereas several studies showed similar positive findings for SUD clinics, this study describes the inverse: an infectious disease clinic that offers SUD care. A qualitative evaluation of the ITTREAT (integrated community-based test-stage-TREAT) Program, which integrates HCV treatment within a substance use treatment center, found that care integration counterbalanced "previous negative hospital experiences."[12] Similar to the ITTREAT study, in which 87% of participants attained HCV cure when offered integrated care,[13] the Bridge Program had a high (83%) success rate in either HCV cure or retention in ongoing care. The 2020 ITTREAT follow-up study also showed significant improvement in health-related quality-of-life measures.[13] Although we collected some data on improved housing status and linkage to follow-up addiction care, examining additional health-related quality-of-life outcomes of the Bridge Program will be important to examine in the future.

Morris et al. focused on the Queensland Injector's Network, a community-based agency in Australia that integrates harm-reduction and treatment services for people who inject drugs. They found a 72% antiviral initiation rate among clients who had a HCV-positive test result, with a 65% treatment completion rate.[14] Morris et al. also interviewed people who inject drugs about their reasons for not pursuing HCV treatment. The 2 most reported reasons were "not experiencing HCV-related symptoms" and "HCV treatment not being a priority".[15] Those findings speak to the overall lack of urgency of HCV treatment for some people with SUD. However, if a person with SUD is treated, they can more fully engage in treatments for other chronic illnesses, such as viral hepatitis and HIV. Thus, treating SUD and HIV/viral hepatitis as co-occurring medical conditions is crucial. A recent multicenter randomized controlled trial by Fadnes et al. compared integrated SUD/HCV treatment with the standard-of-care HCV treatment. They found improved treatment initiation (98% integrated vs. 77% standard-of-care) with similar treatment completion for people who started treatment.[16]

We theorize that the success of the integrated care model of the Bridge Program is due to 2 key factors: (1) reducing the number of visits and travel time required for optimal treatment (particularly in a rural state like Maine) by providing both SUD and viral hepatitis/HIV treatment in one visit, and (2) enhancing a person's recovery and ability to engage in infectious disease treatment by consistently prescribing evidence-based medication for opioid and/or alcohol use disorder. Future directions of the Bridge Program include continuing to build the capacity of the program and to encourage other subspecialists to treat opioid and alcohol use disorders.

This study has some limitations. Most notably is its small sample size. It is challenging to infer success of an intervention with a small patient population. For example, Morris et al. recruited a more diverse group of participants (16% identified as *Aboriginal* or of Torres Strait Islander descent),[15] whereas our findings of a mostly White population from a rural state are difficult to generalize to a broader population of patients with SUD and viral hepatitis or HIV. Future studies would also benefit from increased attention to participants' transition to community programs for ongoing SUD treatment.

CONCLUSIONS

Our study adds further evidence that providing integrated care to patients with SUD and viral hepatitis/HIV can result in successful treatment outcomes. Patients with these co-occurring disorders face a variety of obstacles to care, particularly in a rural state. Therefore, providing multiple, mutually enhancing services under one roof serves as a model for effective, patient-centered care.

Conflicts of Interest: None.

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