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## Integration of hepatitis C treatment at harm reduction centers in Georgia—Findings from a patient satisfaction survey

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### Abstract

**Background**—Georgia launched national HCV elimination program in 2015. PWID may experience barriers to accessing HCV care. To improve linkage to care among PWID, pilot program to integrate HCV treatment with HR services at opiate substitution therapy (OST) centers and needle syringe program (NSP) sites was initiated. Our study aimed to assess satisfaction of patients with integrated HCV treatment services at HR centers.

**Methods**—Survey was conducted among convenience sample of patients receiving HCV treatment at 5 integrated care sites and 4 specialized clinics not providing HR services. Simplified pre-treatment diagnostic algorithm and treatment monitoring procedure was introduced for HCV treatment programs at OST/NSP centers which includes fewer pre-treatment and monitoring tests compared to standard algorithm.

**Results**—In total, 358 patients participated in the survey - 48.6% receiving HCV treatment at the specialized clinics while 51.4% at HR site with integrated treatment. Similar proportions of surveyed patients at HR sites (88.0%) and clinics (84.5%) stated that they did not face any barriers to enrollment in the elimination program. Most patients from HR pilot sites and specialized clinics stated that they received comprehensive information about the treatment (98.4% vs 94.3%;  $p < 0.010$ ). 95% of respondents at both sites were confident that confidentiality was completely protected during treatment. Higher proportion of patients at pilot sites thought that HCV treatment services provided at facility were good compared to those from the specialized clinics (85.3% vs 81.0%). We found significant difference in the time to treatment, measured as average time from

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viremia testing to administration of first dose of HCV medication: 42.9% of patients at pilot sites vs 4.6% at specialized clinics received the first dose of medication within two weeks.

**Conclusion**—Quality of services and perceived satisfaction of patients receiving treatment, suggests that integration of HCV treatment with HR services is feasible.

### Keywords

HCV; Harm reduction; Integration; Patient satisfaction

## Introduction

Georgia, a country with high burden of hepatitis C virus (HCV) infection (Gvinjilia et al., 2016), launched an ambitious national hepatitis C elimination program in 2015 (Ministry of Labour Health and Social Affairs (MoLSHA), 2020; Mitruka et al., 2015) and has made substantial progress (Averhoff et al., 2019). Georgia has a large population of people who inject drugs (PWID); to achieve elimination, which Georgia defined as a 90% reduction in hepatitis C prevalence, efforts are needed to engage PWID, who are at high risk of HCV infection and may experience barriers to accessing hepatitis C care and treatment (Hagan et al., 2019). Provision of treatment for hepatitis C for PWID is effective particularly when delivered in an integrated and multidisciplinary approach (Bajis et al., 2017; Bird, Socías & Ti, 2018; Eckhardt, Scherer, Winkelstein, Marks & Edlin, 2018; Stvilia et al., 2019). Integration of services may mitigate stigma and facilitate hepatitis C treatment access for PWID by creating a welcoming environment at familiar institutions, such as the harm reduction (HR) centers, that foster trust and support for this often-marginalized population.

It is estimated that 2% of the adult population in Georgia inject drugs (Stvilia et al., 2019). Since the launch of the national hepatitis C elimination program in the country, screening for HCV infection dramatically increased among PWID (Stvilia et al., 2019). However, among clients of needle and syringe program (NSP) that tested positive for active HCV infection, only 75.1% initiated treatment (Stvilia et al., 2019). To improve linkage to care and treatment among PWID, the Government of Georgia initiated a pilot program to integrate hepatitis C treatment with HR services at opiate substitution therapy (OST) centers and needle syringe program (NSP) sites. To assess acceptance of integration of hepatitis C treatment services at HR centers, patient satisfaction with OST/NSP participating sites was evaluated and compared to existing centers in Georgia that offer hepatitis C care and treatment without provision of HR services.

## Methods

A patient satisfaction instrument was developed, and a survey was conducted among a convenience sample of patients receiving hepatitis C treatment services at 5 participating integrated care sites (hereafter “pilot centers”) and 4 specialized service centers treating HCV-infected patients but not providing HR services during May 2018 through September 2019. Clients of OST or NSP centers with active HCV infection (HCV RNA positive individuals) and low liver fibrosis level (FIB-4 score <1.45) who were enrolled in the integrated hepatitis C treatment program at HR centers were surveyed (patients with

advanced liver fibrosis [FIB4 1.45] are referred to specialized treatment centers). Patients at specialized clinics were surveyed regardless of liver fibrosis stage. All study participants were enrolled in the study 1 month after initiation of treatment.

A simplified pre-treatment diagnostic algorithm and treatment monitoring procedure was introduced for hepatitis C treatment programs at the participating OST and NSP centers. Compared to the standard algorithm, the simplified version includes fewer pre-treatment (alkaline phosphatase (ALP), gamma-glytamyl transpeptidase (G-GT) and glucose tests were removed) and monitoring (HCV RNA test and complete blood count (CBC) on week 4, alanine aminotransferase (ALT) on week 8 and creatinine and bilirubin on week 12 of treatment were removed) tests.

The nine participating treatment centers included two OST centers in Tbilisi (the capital city), three NSP centers – one in Tbilisi and two in regional cities Zugdidi and Batumi, and four specialized service provider clinics in Tbilisi. The survey instrument was a self-administered questionnaire specifically designed for this study. The questionnaire asked for information about socio-demographic characteristics, perceived barriers faced during enrollment in the hepatitis C treatment program, convenience of location, satisfaction with conditions at the treatment site, perceived attitude of providers including doctors and nurses, perceived concerns about confidentiality, length of time from first viremia testing to the administration of first dose of HCV treatment received, quality of information provided about the treatment and possible side effects of the drugs, and overall satisfaction about treatment services provided at the facility. Study participants were recruited using a convenience sample design at each study site. Participation in the survey was voluntary and participants signed informed consent. The study was approved by institutional review board of Health Research Union (IRB#00009520). The collected data were entered and analyzed in statistical software SPSS v.22.

## Results

In total, we recruited 385 patients and 358 (92.9%) participated in the survey. A total of 174 (48.6%), received hepatitis C treatment at the specialized clinics while 184 (51.4%) received treatment at a HR site with integrated hepatitis C treatment. Compared to specialized clinics, pilot sites had more male participants (89.7% vs. 70.7%;  $p < 0.0001$ ), more persons aged 30–50 years (62.1% vs. 47.1%;  $p < 0.005$ ), and more persons unemployed (64.1% vs. 46.2%;  $p = 0.001$ ). There were no differences in marital status (73.8% vs. 75.3%;  $p = 0.100$ ), education (62.1% vs. 66% had university degree,  $p = 0.200$ ) and place of residence (70.7% vs. 77.6% resided in Tbilisi,  $p = 0.100$ ) between the HR and specialized clinic participants respectively.

OST/NSP centers were the primary source of information about the hepatitis C elimination program for the majority of patients (54.3%) treated at HR pilot sites with family members/relatives/friends being the second most common source of information (36.0%). For patients from specialized clinics, family members/relatives/friends were the most commonly reported source of information (34.5%), followed by healthcare worker (28.2%) and media (27.0%).

Similar proportions of surveyed patients at HR sites (88.0%) and specialized clinics (84.5%) stated that they did not face any barriers to enrollment in the elimination program ( $p = 0.300$ ) (Table 1).

The location of the treatment facility was considered more convenient for patients treated at HR (97.3%) than at the specialized clinics (89.1%), ( $p = 0.002$ ), although both scored highly. Conditions at the medical facility (98.4% vs. 91.4%;  $p < 0.0010$ ) received higher scores from patients treated at the HR site compared to those treated at the specialized clinics, while the attitude of doctors (96.2% vs. 97.7%;  $p = 0.300$ ) and nurses (94.5% vs. 98.8%;  $p = 0.600$ ) were comparable and generally satisfactory by the participants at both the HR pilot sites and the specialized clinics, respectively. Most patients from HR pilot sites and specialized clinics stated that they received comprehensive information about hepatitis C treatment and side effects of medications (98.4% vs 94.3%;  $p < 0.010$ ).

More than 95% of the respondents surveyed at both HR pilot sites, and specialized clinics were confident that their confidentiality was completely protected during treatment ( $p = 0.200$ ).

We found a significant difference in the time to treatment, measured as the average time from the first viremia testing to administration of the first dose of hepatitis C treatment course: 42.9% of patients at pilot sites received the first dose of medication within two weeks after the first viremia testing, whereas only 4.6% of the patients at the specialized clinics received medication within two weeks ( $p < 0.0001$ ).

A higher proportion of patients at pilot sites thought that hepatitis C treatment services provided at the facility were very good compared to those from the specialized clinics (85.3% vs 81.0%;  $p = 0.030$ ). All study participants (100.0%) from both pilot sites and the specialized clinics would recommend their family members, relatives and/or friends enroll in the hepatitis C elimination program (data not shown). Among those receiving care at the pilot sites, 98.9% reported that integrated care was very convenient.

## Discussion

In countries where injection drug use is an important mode of HCV transmission, to eliminate hepatitis C and reduce transmission, it is critical to ensure access to treatment for PWID. However, globally, treatment rates remain low among this high-risk population (Day et al., 2019; Socías et al., 2019), in part due to barriers in accessing care and treatment services (Day et al., 2019; Socías et al., 2019). Integrating the provision of hepatitis C treatment with HR services can improve access to services for PWID (Bird et al., 2018; Socías et al., 2019). Our study found that care integration in HR decreased the time from diagnosis to receipt of the first dose of medication, which can reduce dropout and improve initiation of treatment (Mohamed et al., 2020). Satisfaction with treatment services was at least as good in the HR sites as in the specialized clinics.

An important consideration is that the surveyed populations differed significantly between the HR and specialized clinics. Aside from demographics, all patients surveyed at HR pilot sites were PWID, a marginalized and stigmatized population, while at the specialized

clinics, the population surveyed included patients who were not PWID. This may have limited the perceived satisfaction and impact of treatment receipt at HR sites; that is, specialized clinics may have had a lower satisfaction rate if the surveyed population was limited to PWID receiving services at those sites.

Taken together, our findings suggest that incorporating hepatitis C treatment into HR will improve treatment uptake.

This is the first study in Georgia assessing the satisfaction of patients receiving hepatitis C treatment at HR centers. The majority of surveyed patients at HR centers were satisfied with the convenience of the location, conditions of the facility, the supportive environment, the sense that confidentiality would be assured, and the quality of treatment. It is important to note that there was no difference in the level of satisfaction between the pilot program providing integrated care and treatment services and the specialized clinics.

This study has several limitations. First, we haven't randomized study participants and used convenience sampling. But we don't expect selection bias, because there are no predefined criteria of scheduling patients' appointments by specific days or times. Accordingly, patients visiting clinics for their regular elimination program visits, are not expected to be different. Also, participation rate was high (96% of those asked to participate in a survey). Second, integration of HCV treatment with harm reduction services is a pilot program in Georgia involving only limited number of HR centers. Accordingly, our findings cannot be generalized to all PWID in the country. Third, self-reported data can be associated with information bias.

The quality of service and perceived satisfaction of patients receiving treatment, suggests that this integration model could improve adherence and compliance, decrease dropout rates, and therefore, play a critical role in reaching elimination in Georgia. Integration of hepatitis C treatment with HR services is feasible. Ministry of Internally Displaced Persons from the Occupied Territories, Labor, Health and Social Affairs is planning to expand decentralization of hepatitis C treatment services and one of the key activities is the integration of treatment at HR centers throughout the country. The lessons from this study could facilitate treatment introduction in such settings, and are applicable to other countries with large numbers of PWID seeking to eliminate hepatitis C.

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**Highlights**

- Integrating the provision of hepatitis C treatment with HR services can improve access to services for PWID.
- Care integration in HR decreased the time from diagnosis to receipt of the first dose of medication, which can reduce dropout and improve initiation of treatment.
- Satisfaction with treatment services was at least as good in the HR sites as in the specialized clinics

**Table 1.**

Levels of satisfaction among patients treated for HCV infection at specialized treatment clinics not providing harm reduction services and integrated hepatitis C treatment sites providing opioid substitution therapy or needle/syringe program services, Georgia.

Characteristics	Pilot program centers providing OST/NSP services		Specialized clinics providing HCV care		p-value
	N	%	N	%	
<b>Facing barriers regarding enrollment in hepatitis C elimination program</b>					
No	162	88.0	147	84.5	0.300
Yes	22	11.9	27	15.5	
<b>Convenience of the medical facility's location</b>					
Convenient	179	97.3	155	89.1	0.002
Not convenient	5	2.7	19	10.9	
<b>Conditions (building, waiting space, sanitary norms) at the medical facility</b>					
Satisfactory	182	98.9	159	91.4	0.001
Partially satisfactory/Not satisfactory	2	1.1	15	8.6	
<b>Attitude of doctor towards patient</b>					
Satisfactory	177	96.2	170	97.7	0.300
Partially satisfactory	7	3.8	3	1.7	
<b>Attitude of nurses towards patient</b>					
Satisfactory	174	94.5	172	98.9	0.600
Partially satisfactory	10	5.5	2	1.1	
<b>Received comprehensive information about hepatitis C treatment and side effects</b>					
Yes, completely	181	98.4	164	94.3	0.010
Partially/No	3	1.6	10	5.8	
<b>Protection of confidentiality during hepatitis C treatment</b>					
Yes, completely	180	97.8	166	95.4	0.200
Partially/No	4	2.2	8	4.6	
<b>Average time spent at the facility during the first visit for enrollment in hepatitis C elimination program</b>					
10 min	92	50.0	39	22.4	0.400
20 min	48	26.1	63	36.2	
30 min	44	23.9	72	41.4	
<b>Average time from viremia testing to the administration of the first dose of hepatitis C medication</b>					
2 weeks	79	42.9	8	4.6	<0.0001
1 month	78	42.4	109	62.6	
2 months	20	10.9	39	22.4	
>2 months	7	3.8	18	10.3	



Characteristics	Pilot program centers providing OST/NSP services		Specialized clinics providing HCV care		p-value
	N	%	N	%	
<b>Average time waiting to receive medication at medical facility</b>					
15 min	173	94.0	161	92.5	0.400
30 min	10	5.4	13	7.5	
60 min	1	0.5	-	-	
<b>Convenience of receiving hepatitis C treatment and OST/NSP services at the same facility</b>					
Convenient	182	98.9	N/A	N/A	
Partially convenient	2	1.1	N/A	N/A	
<b>Quality of hepatitis C treatment services at the facility</b>					
Very good	157	85.3	141	81.0	0.030
Good	27	14.7	27	15.5	
Not good not bad	-	-	6	3.4	
<b>Recommending family member/relative/friend to get enroll in hepatitis C elimination program?</b>					
Yes	184	100.0	174	100.0	
No/Not sure	-	-	-	-	

Abbreviations: OST = opiate substitution therapy; NSP = needle syringe program