

Physicians' Knowledge, Opinions and Perceived Barriers to Hepatitis C Care at Ain Shams University Hospital

Maha M. Wahdan^{1*}, Hebat-Allah M.S. Gabal¹, Mouaz M. Zaky², Yasser A. Adam², Mohamed M. Abd El-Fattah²

¹Department of Community, Environmental and Occupational Medicine, Faculty of Medicine, Ain Shams University.

²Internship, Faculty of Medicine, Ain Shams University

Abstract:

Background: Hepatitis C virus has global burden, but it is a potentially curable disease, with sustained virologic response among the majority of treated patients. In recent years, new treatments for hepatitis C have been approved and represent a major advancement in treatment.

Objectives: This study was conducted to assess knowledge, opinions and perceived barriers to hepatitis c direct-Acting Antivirals (DAAs) based regimen among a sample of hepatitis C virus (HCV) treatment providers. **Methods:** A Cross-sectional study on HCV treatment providers at El-Demerdash, Ain Shams University Hospital was conducted. A total of 69 physicians responded to self-administered questionnaire about their knowledge, opinions on the services provided and perception towards treatment barriers.

Results: Most of physicians' opinions agreed with the current state of HCV care as exist of guidelines, patients have adequate access to HCV treatment providers; but they disagreed about that the general public is aware of HCV and know that it is a curable disease. Most of physicians (81%) had high Knowledge level of HCV treatment principles. The most perceived barriers to care were Payer-related barriers followed by government-related barriers and patient-related barriers.

Conclusion: The study highlights the most perceived barriers that may impede the prompt and appropriate treatment of hepatitis C virus infection reported by treating physicians. Therefore, it is important to engage HCV treatment providers in Educational programs that can help to modify their knowledge about HCV treatment and related services, and their communication and practice in guiding patients in their treatment course.

Keywords: Direct-Acting Anti-virals, HCV treatment, Healthcare provider knowledge, Opinions, Perceived barriers.

Introduction:

Hepatitis C virus (HCV) infection is an important global health issue. It is estimated that a significant part of the world population is chronically infected with the virus where 130-150 million people live with chronic HCV infection, and about 350,000- 500,000 HCV-related deaths occur each year. Acute HCV progresses to chronic infection in 55-85% of cases; 15-30% of these will develop complications of chronic liver disease, such as

liver cirrhosis, and 1-5% will develop liver cancer.^{2,3,4} Hepatitis C virus (HCV) has high genetic diversity with regional variations in genotype prevalence which gives challenge in development of vaccines and pan-genotypic treatments.⁵ The HCV is a potentially curable disease, developments in hepatitis C treatment gained speed in the last decade. Several new treatment options are emerging and are available to a large part of the affected population with promise of a sustained

*Corresponding author: E-mail: drmaha_wahdan@med.asu.edu.eg

virologic response (SVR) among the majority of treated patients.⁶

However, in developing countries, there is limited access to hepatitis treatment due to defects in their health systems and insurance coverage, absence of local and national political support in fighting the infection, lack of trained personnel, and lack of diagnostics.⁷ In Egypt, HCV is a major public health problem and according to Egypt Health Issues Survey (EHIS) (2015) results, the prevalence of HCV antibody in the 15–59 year age groups was found to be 10.0% while HCV RNA was 7.0% and approximately, 3.7 million persons have chronic HCV infection.²

Therefore, an estimated 29% reduction in HCV RNA prevalence has been seen since 2008, which attributed to prevention efforts and the ageing of the group infected 40–50 years ago during the mass schistosomiasis treatment campaigns.¹⁷ Prevention efforts for combating HCV problem were held by the Ministry of Health and Population (MOHP) through establishing the National Committee for the Control of Viral Hepatitis (NCCVH) in 2006. By 2008, this committee had developed a National Control Strategy for Viral Hepatitis, and developed an action plan by 2014 which called for effective surveillance,

enhancements in prevention, and expanded access to care and treatment for those with chronic infection.⁸

Recently, MOHP had introduced new, highly-effective medication, once-daily, oral interferon-free treatments with minimal adverse effects to treat HCV infection at an affordable price. Introduction of direct-acting antivirals (DAAs) leads to dramatically improved Hepatitis C treatment which cures up to 95% of patients.⁹⁻¹¹ According to the National Institutes of Health Consensus statement on HCV infection, successful HCV treatment requires staying on the prescribed dose of medications for the prescribed period of time.⁹ But multiple factors serve as barriers to the delivery of antiviral therapy arises to interfere with treatment course as patients may have fear of treatment-related side effects, financial constraints, and social stigmatization; also, physicians may fail to refer patients for subspecialty evaluation or may emphasis on purported contraindications as psychiatric disease, substance use, or medical comorbidities. Also, limitations in funding, medical coverage, and office staffing may prevent treatment.⁶

Therefore, the aim of this study was to assess physicians' knowledge about direct-acting antivirals (DAAs) based regimen as

HCV treatment, and to identify their opinions and perceived barriers to HCV care at Ain Shams University Hospitals.

Methods:

Study design and setting: A cross-sectional study was carried out between August 2017 and January 2018. The study took place at HCV treatment clinic in El-Demerdash, Ain Shams University hospitals.

Study participants: The study population composed of 69 physicians working in internal medicine and tropical departments at El-Demerdash, Ain Shams University hospitals who participate in hepatitis C virus treatment. Physicians were considered eligible for the study if they treated a minimum of 10 HCV patients.

Sampling method: Systematic random sampling involved randomly selecting two days per week, and this random selection repeated every week for two months period with exclusion of weekends then took available physicians working at HCV treatment clinic at selected days.

Sample size: A sample size of 65 produces a two-sided 95% confidence interval with a distance from the mean to the limits that is equal to 1 when the estimated standard

deviation is 4.0 according to McGowan et.al, 2013.⁷

Data collection tool: A modified structured anonymous self-administered questionnaire was used. It was adapted from the validated structured questionnaire by the International Conquer C Coalition (IC3), an organization of hepatitis C experts formed with the goal of optimizing global HCV care.⁷

The questionnaire consisted of four sections:

- **Section 1:** Physicians' Characteristics: age, sex, medical specialty and job category for each physician were documented.

- **Section 2:** Physicians' Opinions Regarding HCV Care (8 questions):

Physicians' Opinions regarding the current state of HCV care were assessed according to level of agreement with the statements about: national and international treatment guidelines recognition and availability; consistent among stakeholders including professional societies, payers, and government; healthcare providers have knowledge of screening and treatment guidelines; the general public is aware of HCV, curability and understand the consequences of HCV if it is not treated; patients have adequate access to HCV providers in their community.

▪ **Section 3:** Knowledge about HCV treatment (26 questions):

Physician knowledge was assessed according to level of agreement with the following points: including statements about drug used and its regimen, contraindication, side-effects and follow up. For example, the addition of ribavirin to peg-interferon improves the likelihood of SVR; maintaining an optimal dose of ribavirin with interferon is necessary to achieve an SVR; different viral genotypes require different treatment durations; treatment should be discontinued for patients who fail to achieve a 2-log decrease in HCV RNA by treatment week 12; the level of HCV RNA has no correlation with the severity of liver disease; maintenance therapy should be prescribed for treatment non-responders.

Each response for knowledge was rated with 0 representing “wrong answer” 5, representing “don’t know” and 10 representing “right answer”. Then composite score was calculated for each physician with maximum total score of 260.

▪ **Section 4:** Barriers to Care (31 questions):

Assessment of 31 potential perceived barriers categorized by patient, provider, government, and payer related categories. Each response was a 10-point Likert scale, with 0 representing “not a barrier to treatment,” 5

representing “somewhat of a barrier to treatment,” and 10 representing “large barrier to treatment.”

A composite score for each dimension of barriers was calculated for each physician. Therefore, Total score of patient related barriers was 120, Total score of government related barriers was 30, Total score of provider related barriers was 70 and Total score of payer related barriers was 90.

Data management and analysis:

Data were managed with Statistical Package for Social Sciences (SPSS) version 20 for windows. Data were checked for accuracy of data entry and missing values. Descriptive statistics as frequency, percentage for categorical data were calculated. Composite scores for knowledge section and different barriers dimensions were created and the mean and standard of the scores was calculated.

Ethical consideration:

Administrative approval from Ain Shams University hospitals was obtained. Researchers explained the purpose of the study and informed the participants about their rights, assuring them that the collected data will not be used for any purpose other than for the present study and that the data will be handled anonymously and Informed

consents were taken from physicians before their participation in the study.

Results:

Description of study participants: Among 69 studied physicians, most respondents were females (60%) and most of them were assistant lecturer 40 (61.5%), while, residents contributed by 18 (27.7%) and lecturer 7 (10.8%).

Physicians' opinions about HCV care: The majority of physicians had positive opinions about the current state of HCV care in the country as shown in Table-1.

Physicians' knowledge about HCV treatment: The majority of physicians had correct answers about statements concerned with treatment dose, duration, contraindication and adverse events. However, they had low knowledge about dose adjustment and drug combinations as demonstrated in Table-2 and Table-3. The mean of knowledge total score was (153.5 ± 31.1) with the majority of Physicians (81%) had high Knowledge level about HCV treatment principles.

Physicians' perceived barriers: The most perceived patient-related barriers were cost of treatment and lab investigation (85.1%). The most perceived government-related barriers were lack of treatment promotion and

insufficient funding (58.8% and 48.5% respectively). The most perceived provider related barrier was lack of referral to HCV providers by other physicians (47.0%). The most perceived Payer-related barriers were insurer does not cover serum marker for fibrosis and insurance plan will not cover RNA /genotyping (84.8% and 75.7% respectively).

Payer related barriers was one of the most important perceived barrier by (87.9%) of physicians, then Government related barriers where (66.2%) of physicians had high score, then Patient related barriers with (61.9%) of physicians had high score, and the most least barrier was provider related barriers where only (23.1%) of physicians had high score as shown in Table- 4 and Table-5.

Correlation between knowledge score and scores of different dimensions of barriers:

It is evident there is a statistically significant correlation between knowledge score and scores of perceived patients' and providers' related barriers ($r = -0.396$ & 0.338 respectively) as found in Table-6.

Discussion:

The current study gave an a clear view as regards physicians' knowledge about hepatitis c treatment and the care provided and the

perceived barriers to get the care from physicians' view in Egypt.

Physicians' Opinions regarding hepatitis c

Care: The majority of Physicians had positive opinions and agreement about the current state of HCV care in the country as "national treatment guidelines exists (79.1%), adequate physicians' knowledge (69.1%)" where the findings of guidelines were similar to those found in McGowan et al., 2013 study results in European countries (71% - 83%).

They were contradicted with physicians' opinions in North America, Latin America, and Middle East/Africa as only (36%-38%) of physicians agreed. In contrary of our study, McGowan et al., 2013, found low agreement level about "healthcare providers had adequate knowledge" (20% - 54%) in comparison to current situation (69.1%); but, it was similar to that found in study conducted on primary healthcare physicians in Baltimore.^{6,15}

On other hand, minority of physicians in current study agreed about "the general public is aware of HCV" (45.6%), "most patients are aware that HCV is curable" (30.4%), and "Patients understand the consequences of HCV if it is not treated" (26.9%); and these findings agreed with McGowan et al., 2013

study about the patients related statement as awareness about HCV and its curability and the consequences of no treatment. In this respect, it is necessary for more promotion and health awareness campaigns for increase the community knowledge about HCV and its treatment.⁷

Physicians' Knowledge about hepatitis c

treatment: The mean knowledge score in the present study was 153.5 ± 31.1 with range (95–210) with majority of them having high scores (81%) and this knowledge of HCV was likewise adequate among drug-treatment providers and this finding was similar to physicians results in Western Europe who correctly answer the most knowledge questions, but, those in Middle East and African countries correctly answering the fewest.

These results reflect that knowledge of HCV treatment principles varied by region as found in McGowan et al., 2013 study.⁷ In our study we found that there was high knowledge about HCV treatment dose, duration, contraindication and adverse events among physicians; but, they had low knowledge about dose adjustment and drug combination. This finding was similar to those reported by Falade-Nwulia et.al. 2016; and against other

study conducted in China where there was poor physicians knowledge.^{14,15} In this respect, it is necessary for more educational sessions about the new treatment.

Perceived Barriers to Care: The current study results revealed that Payer related barriers was one of the most important perceived barrier including insurer does not cover serum marker for fibrosis and insurance plan will not cover RNA /genotyping which stress on the fact that patient will bear the cost of these procedures(out of pocket expenditure), then Government related barriers which include lack of treatment promotion and insufficient funding, then Patient related barriers which include cost of treatment and lab investigation, need for liver biopsy, inaccessibility of experienced providers and fear of side effects.

In McGowan et al., 2013 study, the different barriers across regions were assessed; and the results revealed that Payer-related barriers were most prominent in Latin American and Middle East/Africa and included lack of coverage leading to out-of-pocket expense and excessive paperwork requirements⁷ as found in the current study.

But, patient-related barriers were viewed as most significant globally and this is against

what found in the current study. Also, this was in contradiction with Evon et.al and Parkes et.al. where in surveys concluded that physicians in the United States and United Kingdom addressed that those patient level factors were the greatest obstacles to treatment principles.^{12,13} Other previous studies agreed that barriers come from both individuals and the entire system. Therefore, HCV intervention should be a “combination intervention,” that is, it should involve all possible barriers dimensions.^{14,16}

Knowledge score was found to be statistically significant correlated with patients' and providers' barriers where it was found that physicians who scored lower on the knowledge assessment tended to perceive greater patients' barriers; therefore fewer patients would miss the treatment as a result of incorrectly perceived barriers. While Physicians with higher knowledge showed higher providers' barriers as they know what to do but they had barriers in providing care due to defect in supports and facilities. These perceived barriers may be overcome through improved education and improved the support to facilities provide HCV treatment and these results were similar to other findings in McGowan et al., 2013 study.⁽⁹⁾

Study limitation:

The current study was conducted in one hospital in Cairo, Egypt, thus physicians who completed the survey may not reflect the knowledge and opinions of all physicians in Egypt. Therefore, a better study design could have been adopted using sample of physicians from different types of hospitals in different governorates. Limited number of physicians' working in HCV treatment clinic who are eligible for participating in the study. There may be other barriers or facilities that prevent or enhance the HCV service that we did not examine in the current study. Future work will be conducted to clarify these issues especially from patients' perspective.

Conclusion:

The present study indicated that the majority of Physicians had positive opinions about the current state of HCV care in the country. Less than half of all surveyed physicians believed that the general public is aware about HCV and that it is a curable disease. Most of physicians had high Knowledge level about HCV treatment principles. The most perceived barriers to care cited were Payer-related barriers mainly, then government-related barriers then patient-related barriers and lastly provider related barriers.

It is recommended that improving provider knowledge and practice about how to guide patients to the correct path to get effective treatment, and ways to get low price treatment are necessary for progress in the fight against HCV infection through physician training. Patients' counseling and mass media awareness programs are important for improving patient awareness about treatment and its consequences.

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Table (1): Physicians' Opinions regarding HCV Care

Respondents in agreement with the statement	No.	%
▪ National treatment guidelines are available in my country	60	87.0
▪ Government and/or payers recognize national or international treatment guidelines	53	79.1
▪ Treatment guidelines and policies are consistent among professional societies, payers, and government	52	75.4
▪ Healthcare providers have knowledge of screening and treatment guidelines	47	69.1
▪ Patients have adequate access to HCV providers in their community.	42	60.9
▪ The general public is aware of HCV	31	45.6
▪ Most patients are aware that HCV is curable;	21	30.4
▪ Patients understand the consequences of HCV if it is not treated	18	26.9

Table (2): Physicians' knowledge regarding HCV treatment indication, dose and contraindication

Statements of Respondents with Right Answer	No.	%
▪ Addition of ribavirin to sofosbuvir improves the likelihood of SVR	59	85.5
▪ Maintaining an optimal dose of ribavirin with sofosbuvir is necessary to achieve an SVR	36	52.9
▪ Different viral genotypes require different treatment durations	54	78.3
▪ Treatment should be discontinued for patients who fail to achieve a 2-log decrease in HCV RNA by treatment week 12	27	39.1
▪ Treatment should be discontinued for patients who have detectable HCV RNA at treatment week 4	6	8.7
▪ Patients with stage 1 fibrosis have worse treatment outcomes than patients with stage 4 fibrosis	0	0.0
▪ level of HCV RNA has no correlation with the severity of liver disease	36	52.2
▪ Maintenance therapy should be prescribed for treatment non-responders	1	1.4
▪ Sovaldi is given when Adult patients with genotype 1, 2, 3 or 4 chronic hepatitis C virus (HCV) infection without cirrhosis only	3	4.3
▪ Pediatric patients 12 years of age and older or weighing at least 35 kg with genotype 2 or 3 chronic HCV infection without cirrhosis sovaldi is given in combination with interferon	6	8.8
▪ Patients' genotype 1 or 4 infection without cirrhosis or with compensated cirrhosis; sovaldi is given in combination with peginterferon-alfa and ribavirin	10	14.5
▪ Genotype 2 or 3 infection without cirrhosis or with compensated cirrhosis in combination with ribavirin	38	55.1
▪ Sofosbuvir is a 400 mg pill taken once-a-day	56	82.4
▪ Pegylated interferon (PEG) is injected under the skin once-a-day *	5	7.2
▪ Ribavirin (pill) taken twice daily. The dose of ribavirin is based on body weight (<75kg = 1000mg; ≥ 1000kg = 1200mg)	52	75.4
▪ Sovaldi plus PEG/RBV is also approved to treat HCV in people co-infected with HIV	26	38.8
▪ The patients in the trial who were over 65 years don't have similar cure rates as those less than 65 years. No drug dose reductions were required in this age group *	26	38.2
▪ Sovaldi dose adjustment for people with mild-to-moderate kidney impairment *	27	39.1
▪ Sovaldi dose adjustments for people with liver impairment, but people with decompensated cirrhosis were not studied in the clinical trials *	21	30.9
▪ People with liver cancer pre-transplant cannot be treated with sofosbuvir/ribavirin *	32	46.4
▪ Women must have a negative pregnancy test prior to therapy and must use at least 2 effective non-hormonal methods of birth control. A woman must have monthly pregnancy tests	53	76.8
▪ Sovaldi should not be taken with certain medications such as HIV medications, anti-mycobacterials and anticonvulsants	59	85.5

(*) Means wrong statement

Table (3): Physicians' knowledge regarding HCV treatment adverse events

Statement of Respondents with Right Answer	No.	%
▪ The most common adverse events observed with Sovaldi in combination with ribavirin were fatigue and headache	55	79.7
▪ The most common adverse events observed with SOVALDI in combination with peginterferon alfa and ribavirin were fatigue, headache, nausea, insomnia and anemia	58	84.1
▪ Sovaldi don't cause Hepatitis B virus reactivation *	20	29.0
▪ Sovaldi causes slow heart rate (bradycardia) when taken with amiodarone	59	85.5

(*) Means wrong statement

Table (4): Physicians' response about patient related and government related barriers against HCV treatment

Respondents in agreement with the statement	No.	%
Patient-related barriers		
▪ Medication expense	57	85.1%
▪ Laboratory expense	57	85.1%
▪ Patient declines liver biopsy	40	58.8%
▪ Inaccessibility of experienced providers	35	51.5%
▪ Fear of side-effects	33	49.3%
▪ Lack of proper storage for medications	33	48.5%
▪ Treatment duration	30	44.8%
▪ Preference for alternative therapy	29	42.7%
▪ Difficulty with administration	22	32.4%
▪ Desire to wait for newer therapies	9	13.4%
▪ Fear of stigma related to HCV	8	12.1%
▪ Low success rate of treatment	1	1.5%
▪ Mean Patient related barriers score \pm SD (Min – Max)	65.0 \pm 26.6 (10.0 – 110.0)	
▪ Patient related barriers score categories		
○ Low score (< 50% of total score) (< 60)	24	38.1%
○ High score (\geq 50% of total score) (\geq 60)	39	61.9%
Government-related barriers		
▪ Lack of promotion for HCV treatment	40	58.8%
▪ Insufficient funds allocated to HCV	33	48.5%
▪ Government restricts treatment	21	30.9%
▪ Mean Government related barriers score \pm SD (Min – Max)	16.9 \pm 10.5 (.0 – 30.0)	
▪ Government related barriers score categories		
○ Low score (< 50% of total score) (< 15)	23	33.8%
○ High score (\geq 50% of total score) (\geq 15)	45	66.2%

Table (5): Physicians' response about patient related and government related barriers against HCV treatment

Respondents in agreement with the statement	No.	%
Provider-related barriers		
Lack of referral to HCV providers by other physicians	31	47.0%
Insufficient reimbursement for physicians	25	38.5%
Lack of office infrastructure to treat patients	23	34.8%
Limited access to medications or labs	4	6.1%
Unable to obtain necessary labs for treatment	2	3.0%
Insufficient training for HCV management	2	3.0%
Treatment limited to government-mandated centers	1	1.5%
Mean Provider related barriers score \pm SD (Min – Max)	24.3 \pm 12.5 (5.0 – 45.0)	
Provider related barriers score categories		
Low score (< 50% of total score) (< 35)	50	76.9%
High score (\geq 50% of total score) (\geq 35)	15	23.1%
Payer-related barriers		
Insurer does not cover serum markers of fibrosis	56	84.8%
Insurance plans will not cover RNA/genotyping	50	75.7%
Insurance plans limit which physicians treat HCV	46	68.7%
Excessive paperwork requirements	40	59.7%
Insurance plans do not cover medications for side-effects	36	54.5%
Restricted insurance coverage for patients with HCV	12	17.9%
High out-of-pocket expense for patients	11	16.4%
Liver biopsy required for treatment	1	1.5%
Insurance plan does not cover treatment	1	1.5%
Mean Payer related barriers score \pm SD (Min – Max)	53.1 \pm 10.4 (10.0 – 65.0)	
Payer related barriers score categories		
Low score (< 50% of total score) (< 45)	8	12.1%
High score (\geq 50% of total score) (\geq 45)	58	87.9%

Table (6): Physicians' response about patient related and government related barriers against HCV treatment

Variables		Patients' Barriers score	Governmental barriers score	Providers' barriers score	Payers' barriers score
Total knowledge score	Pearson Correlation	-0.396**	0.199	0.338**	0.149
	P	0.002	0.117	0.007	0.245

الملخص العربي

معرفة الأطباء والعوائق المدركة اتجاه الألتهاب الكبدي الوبائي سي في مستشفى جامعة عين شمس

منار محمد اللبان – ميرفت حسن راضى – هبه الله محمد صلاح جبل – نيرة سامى مصطفى

الخلفية: يمثل فيروس الألتهاب الكبدي سي عبئاً عالمياً ، ولكنه مرض قابل للشفاء ، مع استجابة فيروسية مستدامة بين غالبية المرضى المعالجين. وفي السنوات الأخيرة ، تمت الموافقة على علاجات جديدة لالتهاب الكبدي الوبائي سي ويعد ذلك تقدماً كبيراً في العلاج.

الهدف: أجريت هذه الدراسة لتقييم المعرفة والآراء والعوائق المتصورة ضد نظام العلاج القائم علي مضاد للفيروسات المباشر (DAA's) بين عينة من مقدمي العلاج من فيروس الالتهاب الكبدي الوبائي سي.

المشاركون وطرق البحث: أجريت دراسة مستعرضة لمقدمي العلاج من فيروس الألتهاب الكبدي سي في الدمرداش بمستشفى عين شمس الجامعي. و قد أجاب ما مجموعه 69 طبيباً على استبيان يملأ ذاتياً حول معرفتهم ، وجهات النظر حول الخدمات المقدمة وتصورهم للحواجز ضد العلاج.

النتائج: معظم آراء الأطباء تتفق مع الوضع الراهن للرعاية بفيروس التهاب الكبد (سي) حيث توجد مبادئ توجيهية ، كما أن المرضى يستطيعوا الوصول لمقدمي العلاج من فيروس الألتهاب الكبدي سي؛ لكنهم غير موافقين علي أن عامة الناس على دراية بـ فيروس الألتهاب الكبدي سي ويعرفون أنه مرض قابل للشفاء. وكان لدي معظم الأطباء (81 %) مستوى عال من المعرفة عن مبادئ العلاج . وقد كانت العوائق ضد الرعاية الأكثر إدراكاً من قبل الأطباء هي العوائق بسبب التكلفة ، ثم العوائق المرتبطة بالحكومة وأخير العوائق المرتبطة بالمريض.

الخلاصة و التوصيات: تسلط الدراسة الضوء على العوائق الأكثر إدراكاً التي قد تعوق المعالجة الفورية واللازمة لعدوى فيروس الالتهاب الكبدي الوبائي التي أبلغ عنها الأطباء المعالجون. لذلك ، من المهم إشراك مقدمي العلاج من فيروس الألتهاب الكبدي سي في برامج توعية تساعد في تحسين معرفتهم عن العلاج الجديد لفيروس سي والخدمات ذات الصلة ، كما تحسن تواصلهم وممارستهم في توجيه المرضى في دورة العلاج الخاصة بهم.