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Assessing staff knowledge of HCV and perceived barriers to treatment at an integrated substance use disorder clinic

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Abstract

The purpose of this project was to: 1) assess staff members' knowledge regarding transmission, disease processes, and treatment outcomes for HCV; 2) identify staff perceived barriers to care for patients; 3) evaluate staff perception of how barriers are being addressed at an organizational level at an integrated outpatient substance use disorder (SUD) clinic. Responses to open-ended questions were analyzed for themes and re-presented in sequential surveys according to Delphi methodology to achieve consensus among respondents. Knowledge gaps for staff were identified regarding the high cure rates offered by medications as well as the increased risk of liver cancer as a disease outcome. Active addiction and day-to-day stability were identified as the top barriers by staff. More follow up is needed to further evaluate how to mitigate these barriers at the organizational level. Recommendations include ensuring staff knowledge of HCV disease processes as well as treatment outcomes such as the benefits offered by newer medications eg. cure rates of above 95% with few side effects.

Hepatitis C (HCV) is the leading cause of chronic liver disease, cirrhosis, and liver cancer as well as the leading indication for liver transplant in the United States (Khullar & Firpi, 2015; Reilley et al., 2018). Early infection is asymptomatic which presents difficulty in delineating disease prevalence; however, conservative estimates suggest that HCV affects 3.5 million Americans (Hepatitis C Questions and Answers for the Public, 2020). There are approximately 20,000 deaths annually in the U.S. attributed to HCV (Reilley et al., 2018) and this number exceeds the total number of deaths attributed to 60 other infectious diseases combined including human immunodeficiency virus (HIV), pneumococcal disease, and tuberculosis (TB) (Reilley et al., 2018).

HCV is spread through contact with blood from an infected person. While vaccines are available for hepatitis A and B, there is no vaccine for HCV. However, HCV can be treated and cured via medication. (Hepatitis C Questions and Answers for the Public, 2020).

Background & Significance

Incidence of HCV in the U.S. has increased 387% from 2010 to 2019. This increase over the last 10 plus years is attributed to the opioid epidemic and increased intravenous drug use (IVDU) (Spach, 2021). Studies report that 67% of new HCV cases report a history of IVDU (Hepatitis C Questions and Answers for the Public, 2020). Estimated healthcare cost per patient per year for untreated HCV is $57,000 annually/person (Roebuck & Liberman, 2019). with the highest rates of infection occurring among people between 30 to 39 years old (Spach, 2021).

Demographically, HCV occurs predominantly in white males, as 65% of those affected are white and 60% male (Spach, 2021). However, deeper investigation of HCV incidence rates by ethnicity demonstrates a disproportionately higher effect for American Indian/Alaska Native (AI/AN) peoples compared to Caucasian peoples, 3.6 vs. 1.4 per 100,000 people (Spach, 2021).

Furthermore, AI/AN individuals have the highest HCV-related mortality rate of any ethnicity (Reilley et al., 2018).

Integrated care models have arisen to address the specific healthcare needs for patients with substance use disorder (SUD). Integrated treatment refers to treatment approaches focused on two or more co-occurring, or co-morbid conditions through multiple treatments such as pharmacotherapy and psychotherapy. Studies report that SUD is highly comorbid with psychiatric disorders as 27% of patients with SUD also meet criteria for at least one psychiatric disorder, while 45% meet criteria for two or more psychiatric disorders (Kelly & Daley, 2013). Integrated treatment models have been shown to be superior to single based focus treatments and offer additional benefit to clients by providing services at a single location (Kelly & Daley, 2013). Further, integrated treatment mirrors collaborative care models using an interdisciplinary team which consists of social workers, counselors, and case managers. As these team-members work directly with mental health clients with SUD in outpatient care, they can benefit from understanding how comorbidity impacts all conditions as well as how addiction impacts physical health. Further, the rapport and closeness that these team members have with clients provides them with deeper insight to the clients' experience of receiving healthcare services compared to medical practitioners.

Theoretical framework

The social ecological framework conceptualizes how multiple risk factors exist at the individual, interpersonal, communal, and societal levels to affect health (Jalali et al., 2020). Each level is represented within a nesting model as part of the larger category to represent the interplay of factors and levels in determining health outcomes. For example, individual and interpersonal factors exist within communities and societal factors such as education and health

care policy, which have downstream effects on communities, interpersonal relationships, and the individual.

This framework has been adapted by Jalali et al. (2020) to illustrate how opioid use is a multifaceted and complex issue that calls for public health interventions to use a broader and a more integrated approach (See Figure 1). This framework illustrates how interventions must address multiple risk factors across each distinct yet intertwined level.

Project Aims

The purpose of this quality improvement project is to: 1) assess staff members' knowledge regarding transmission, disease processes, and treatment outcomes for HCV; 2) identify staff perceived barriers to care for patients; 3) evaluate staff perception of how barriers are being addressed at an organizational level at an integrated outpatient SUD clinic.

PICO Question

What barriers to treatment do SUD/MH counselors perceive to be the most impactful for clients with SUD receiving MAT at an integrated clinic?

Literature review

Prior to the opioid epidemic of the last 20 years, HCV predominantly affected the "baby boomer" generation, that is, people born between 1945 – 1965, as this group comprised about 75% of HCV cases in the U.S. (Reilley et al., 2018). High incidence rate in this population is believed to be attributed to lack of knowledge regarding HCV and medical procedures in the years immediately following World War II, when injection and blood transfusion technologies were not as safe as they are today (Hepatitis C Questions and Answers for the Public, 2020). With current precautions regarding blood handling and transfusions, the risk of contracting HCV from a blood transfusion today is estimated to be less than 0.001%. While HCV can be spread

through sexual contact, rate of transmission is low and is estimated to be 0-3% by means of unprotected heterosexual intercourse; transmission rates are estimated to be higher among male-male sex. Additional risk factors for developing HCV include vertical transmission from mother to child, unsafe tattooing practices, and sharing household personal items such as razors or toothbrushes with an infected person, although rates of transmission from these routes is relatively low (Hepatitis C Questions and Answers for the Public, 2020). Major risk factors for HCV include chronic hemodialysis, receipt of a blood product transfusion before 1992, having undergone a solid organ transplant, or receipt of clotting factor concentrates for hemophilia before 1987, and most predominantly IVDU (Hepatitis C Questions and Answers for the Public, 2020). Additionally, studies estimate that 10-20% of people who misuse opioids will progress to IVDU (Rich et al., 2018).

Early infection from HCV is often asymptomatic and as a result most people do not seek care until many years later. If symptoms are present, they are often non-specific such as fatigue, right upper quadrant abdominal pain, and nausea (Kish et al., 2017). It is estimated that only about 55% of people who are infected with HCV are aware of their infection status (Spach, 2021; Fadnes et al,. 2021). Acute HCV infection will spontaneously resolve in 15% to 25% of adults within the first year, while the remaining 75% of people infected will experience persistent viremia in the form of chronic HCV (Khullar & Firpi, 2015). Of those who develop chronic HCV, approximately 15-30% will develop cirrhosis in the following 20 years (Khullar & Firpi, 2015). Factors such as alcohol use, obesity, fatty liver disease, and concomitant infection from HIV or hepatitis B virus (HBV) can accelerate the progression of cirrhosis. HCV related cirrhosis places patients at an increased annual risk of 1% - 4% of developing hepatocellular carcinoma (HCC) (Khullar & Firpi, 2015) as well as end stage liver disease (ESLD) (Kish et al.,

2017). Progression to ESLD introduces the possibility of developing hepatic encephalopathy, ascites, esophageal varices, spontaneous bacterial peritonitis, and lastly need for liver transplant (Kish et al., 2017). Annual healthcare costs attributed to HCV are estimated to be $17,879 per disabled individual (Roebuck & Liberman, 2019). Additionally, productivity loss estimates suggest that patients with untreated HCV will have $4847 less in earnings per patient/year compared to persons without HCV (Sulkowski, 2020).

Before the introduction of direct-acting antiviral (DAA) medications in 2013, HCV was treated with interferon-based medications. These medications required administration via subcutaneous or intramuscular injection for between 6 to 24 months and commonly had several side effects such as fever, headache, arthralgias, and myalgias. Further, these interferon-based treatments only offered about a 50% cure rate. DAAs offer increased efficacy of treatment to cure rates above 95%, a shorter course of treatment of between 8 to 24 weeks, and greatly reduced side effects compared to the interferon-based treatments (Jiang et al., 2021). Treatment with DAAs has been shown to reduce liver failure by 90%, liver cancer by 70%, all-cause mortality by 50%, as well as a return to normal life expectancy for patients with cirrhosis (Mera et al., 2018). Further, treatment efficacy for SUD patients with HCV receiving medication-assisted treatment (MAT) such as methadone and buprenorphine have been found to be comparable to treatment rates in non-SUD populations (Reilley et al., 2021).

As a result of the advances in treatment offered with DAAs, the World Health Organization (WHO) set the goal for HCV to be cured by 2030. They defined this as a 65% reduction in mortality and 90% reduction in incidence (Reilley et al., 2018). Estimates suggest that treating all HCV patients would translate to an increase of $2.7 billion USD annually in productivity gains (Sulkowski, 2020). Despite these advances in treatment, current predictive models suggest

that the prevalence of chronic HCV will continue to rise throughout the next decade as efforts for screening and treatment need to be increased to meet the goal of treating the 3.5 million Americans affected (Khullar & Firpi, 2015). Furthermore, achieving this goal is limited by the presence of additional barriers which exist for people who misuse opioids such as shame, stigma, lack of knowledge, incorrect health information, and distrust of the medical profession, in addition to the presence of the long-standing systemic injustices that affect otherwise vulnerable populations.

Methods

This project assesses staff knowledge regarding HCV transmission, disease processes, and treatment outcomes, as well as perceived barriers to treatment for clients at an SUD clinic. This quality improvement project utilizes a mixed methods approach of open-ended questions and items ranked on Likert scales in addition to modified Delphi methodology across three sequential surveys completed via Qualtrics.

Delphi methodology is a qualitative method designed to develop an expert-based judgement among a group about an epistemic question (Niederberger & Spranger, 2020). In this process, respondents identify, evaluate, and rank items on Likert scales across multiple rounds of surveys to indicate consensus. This process is completed anonymously and allows for respondents to have equal weight throughout the process. Between surveys, mean scores are examined for each item presented on Likert scales. Items that meet a pre-determined cutoff value are then included in the subsequent surveys. Criteria for defining consensus varies between projects and authors (Niederberger & Spranger, 2020); it was set at 60% or higher for the purposes of this project.

Setting

This project was conducted at a tribally funded, integrated outpatient SUD clinic that provides MAT in addition to primary care, psychiatry, dental, SUD counseling, and mental health (MH) services for roughly 240 clients. This integrated clinic also provides transportation to/from the clinic via shuttles as well as on-site childcare for clients receiving services. Clients undergo screening for HIV and HCV upon admission and annually thereafter. MAT and medical care are provided by a doctor specialized in addiction and family medicine, 3 family nurse practitioners (FNPs), a psychiatric mental health nurse practitioner (PHMNP), and a clinical pharmacist. Behavioral health (BH) services are provided by 9 SUD counselors and 3 MH counselors. Recent feedback from an assessment by The Department of Health (DOH) identified the need for physical health concerns to be addressed by SUD/MH counselors as an area of improvement.

This project was conducted virtually during the COVID-19 pandemic.

Participants and Recruitment

Behavioral health counselors at the organization were invited to take part in this project via email which contained a short description of the project and weblink to the survey sent by the assistant medical director. Responses were not matched between surveys and no demographic data was obtained as part of this project due to confidentiality regarding responses at a small clinic. Consent was obtained at the beginning of each survey. As a result, participants had the opportunity to withdraw at any time and were re-consented as noted.

This project underwent review and was approved by The Institutional Review Board (IRB) at Seattle University as exempt human subjects.

Instrument

The first survey addressed aims 1 and 2 through open-ended questions to assess staff knowledge of HCV and perceived barriers to care (See Table 1). Questions used to assess staff knowledge of HCV were piloted and approved by the assistant medical director of the organization. Themes identified within responses to question 2.A (perceived barriers) were included as items in the second survey (aim 2). In this survey, respondents ranked how impactful they perceived these barriers to be for clients on a Likert scale of 1-100. Items that met or exceeded 60% were then included as items in survey 3 (aim 3), which examined the perception of these barriers at the organizational level. In this survey respondents ranked items on a Likert scale of 1 to 5, indicating how strongly they disagree to agree with each statement.

Data Analyses

Responses to open-ended questions were analyzed for themes via inductive semantic thematic analyses as described by Kiger & Varpio (2020). Responses and coding for themes were displayed in tables (See Tables 7-11). Frequency of themes identified were reported via charts (See Tables 2-6). Items ranked on Likert scales were analyzed for mean, standard deviation, and variance through Qualtrics.

Results

Aim 1 – Staff knowledge of HCV

Nine respondents completed the first survey. Staff identified 32 items comprised of 13 unique themes regarding methods of HCV transmission. The most common themes identified as modes of transmission were IVDU (7), followed by needlestick (5), and sexual contact (5) (See Table 2). Responses for disease process received 28 items across 14 unique themes; respondents indicated liver damage (5), jaundice (3), and hepatitis (3) as the top three themes (See Table 3). Additionally, one respondent indicated as feedback that they would like to learn more about

long-term outcomes of untreated HCV. Querying staff knowledge of HCV treatment yielded 16 items across 7 unique themes. Medication (3) and new medication (3) were the most identified themes; antivirals (2), interferon (2), and well tolerated/curable/good success rate (2) were equally reported in the data (See Table 4).

Aim 2 - Barriers to care

Staff identified barriers to care were comprised of 17 items across 13 unique themes. Lack of access (5), lack of knowledge (3), and lack of trust in the medical establishment (3) were the top three categories among themes reported (See Table 5). The most commonly hypothesized methods to address barriers to care identified were providing education (4) and providing or expanding treatment (4) (See Table 6).

Eight respondents completed the second survey rating 13 items on a scale of 1 – 100. Mean scores by item are displayed in table 12. Lack of follow through while in active addiction (85.63), day to day stability (81.25), and shame or stigma (78.25) emerged as the top three highest ranked themes among staff identified barriers. A total of eight items received mean scores above 60, seven of which were included as items for survey 3. Day-to-day stability was omitted as this theme encompasses several different factors such as basic needs, social engagement, mental health, etc.., some of which also exist within the theme with of active addiction.

Aim 3 – Perception of barriers within the organization

Five respondents completed the third survey. Mean scores for items ranked 1-5 on Likert are displayed in table 13. Items that received a mean score of 4 to 5, denoting agree and strongly agree, were staff self-assessment of adequate knowledge of HCV disease outcomes (4.0), adequate transportation assistance (4.6), and proper treatment of clients to decrease

shame/stigma (4.8) as well as building trust (4.6). Items that received less confidence rating were client access to primary care practitioners (3.4), impact on active addiction (3.8) and client knowledge of HCV disease outcomes (2.2).

Limitations

Limitations within this project exist. Findings from qualitative methods are not able to be generalized to other populations. Demographic data for respondents was not collected as part of this project as a safeguard to maintain confidentiality. Further, this project relied on secondary data regarding perceptions of barriers to care for clients which may not be representative of client experiences. Lastly, subjective differences in coding for themes may account for differences in interpretation of the data.

Discussion

HCV Knowledge – Aim 1

Staff knowledge of HCV transmission was found to be accurate. Seven of nine respondents, or 78%, indicated IVDU among themes of transmission. Bloodborne pathogen and bodily fluids were not included within the theme of IVDU as these themes often appeared outside IVDU (See Tables 2 & 7). Less prevalent methods of transmission were correctly identified although knowledge regarding rate of transmission via these routes was not assessed. Noteworthy, dried blood occurred as a theme among responses. While not commonly considered a vector for HCV, this has implications when discussing safe injection practices, as HCV can persist in dried blood for up to 6 weeks and can be transmitted through the co-use of IVDU accessories such as cookers, water, and cotton (Edlin et al., 2007).

Regarding disease outcomes, seven of nine respondents (78%) indicated liver damage or liver failure as the primary disease outcomes for HCV. However, only two respondents (22%)

included liver cancer among themes. Non-specific themes that emerged include hepatitis, jaundice, and elevated liver enzymes. These findings suggest that staff may benefit from additional knowledge regarding the development and progression of HCV

All respondents indicated understanding that treatment is available for HCV, however themes among responses varied highly due to the presence of co-occurring themes between the following: new medication, antivirals, medication, and interferon. Themes reflecting the benefits offered by DAAs such as curable, well tolerated, and good success rate appeared only twice each among responses, indicating a need for further knowledge regarding cure rates and side effect profiles of these medications.

Barriers to care – Aim 2

Lack of knowledge and lack of access to care were the most frequent barriers reported among themes yet were ranked lower in terms of impact during the second survey. Lack of follow through while in active addiction and day-to-day stability emerged as most impactful barriers, followed by shame or stigma, lack of transportation, and distrust of medical providers. These indicate the multifaceted problem of addressing substance use disorder across individual, interpersonal, community, and societal levels. While methods to address these some of these barriers are have already been taken by the organization, additional follow-up with staff and clients is needed to investigate how these barriers directly affect clients and how to bridge these gaps. Staff identified Potential solutions to these barriers include increased housing support, same day reminder calls, and needle exchange programs. Further, more investigation into staff and client perspective of how-to best support clients with regards to day-to-day stability is needed.

Lack of healthcare coverage, lack of providers in geographical area, and provider hesitancy to treat while in active addiction were ranked by staff members below the cutoff value. These factors may be perceived not to apply to clients in this organization as they are insured by Medicaid and receive services via a healthcare team experienced working with SUD populations.

Aim 3: Barriers within the organization

Staff indicated a perceived lack of information for clients regarding HCV disease processes and health outcomes. This requires further investigation via client interview and may be a key theme to improve client knowledge and impact health behavior. Additionally, staff indicated perception that clients lacked access to primary care services. Follow-up is needed to investigate clients' perception of access to primary care. While clients may receive primary care services at the organization, or through outside practitioners, difficulties accessing care or navigating the healthcare system due to lack of technology during the COVID-19 pandemic could play a larger role in this population compared to others.

Efforts taken by the organization to provide transportation, reduce shame/stigma, and build medical trust were recognized by staff members and perceived as beneficial. While these findings demonstrate steps taken to address such barriers at the community level, continued work and time is needed to assist clients in utilizing these services. Furthermore, utilization of these and other services over time is required to begin to make change to clients' internalized beliefs at the individual and interpersonal levels.

Ability to mitigate the impact active addiction has upon receiving treatment varied across staff. Additional investigation is needed to identify specifically what factors clients in active addiction experience as primary barriers to treatment such as unmet basic needs may play a large role in facilitating addiction.

Conclusion

Integrated and collaborative treatment models are best poised to serve clients with SUD, however, barriers to care still exist which limit client utilization of services. Staff perception of these barriers may reveal additional areas for improvement in linkage to care for clients, however it may take time for community level interventions to impact client's internal factors such as shame or stigma and lack of knowledge. Assuring staff knowledge of HCV disease outcomes such as the increased annual risk of liver cancer with chronic HCV as well as the advanced benefits of DAAs i.e., 95% cure rate and low side effect profile, are essential. Improving client understanding of these issues may be first steps to linking clients to care at integrated treatment facilities. Further work is needed to disseminate knowledge to clients. Interviewing clients to understand their healthcare needs from their perspective should be done.

This project aimed to assess SUD/MH counselors' knowledge of HCV, perception of barriers to care, and evaluation of methods taken to address barriers at the organizational level. Findings include identification of a knowledge gap for staff regarding HCV disease outcomes and efficacy of new treatments. Further, staff members identified an area for increased knowledge for clients regarding HCV disease outcomes. More investigation is needed to determine clients' level of knowledge both from the client and counselor side as this knowledge gap could be related to incorrect information rather than lack of knowledge.

Implications for Practice

Stating the benefits of DAAs in treating HCV can improve client knowledge and encourage treatment. It is important for SUD/MH counselors to know this information as they serve as case managers/liaisons for the interdisciplinary team and can assist in addressing physical health concerns related to addiction. Furthermore, it is paramount to ensure that

information delivered to clients is consistent, poignant, and accurate to address knowledge gaps and improper health information. Ensuring that each counselor within the organization knows and can provide this information to clients is a clear step to address DOH feedback stating the need for counselors to discuss physical impacts of addiction with clients.

While improving client knowledge is an important and a clear step to improve delivery of care, direct and ongoing work with clients is needed to evaluate clients' priorities and experiences receiving healthcare. Provision of support services adapted to client needs may not change internalized feelings of shame and stigma just as delivering knowledge alone may not change long standing beliefs and prioritization of needs. Through the use of integrated care models that combine MAT, SUD/MH counseling, psychiatry, and primary care services, care teams can work to deliver effective care to clients with opioid use disorder while continually working to improve delivery of services.

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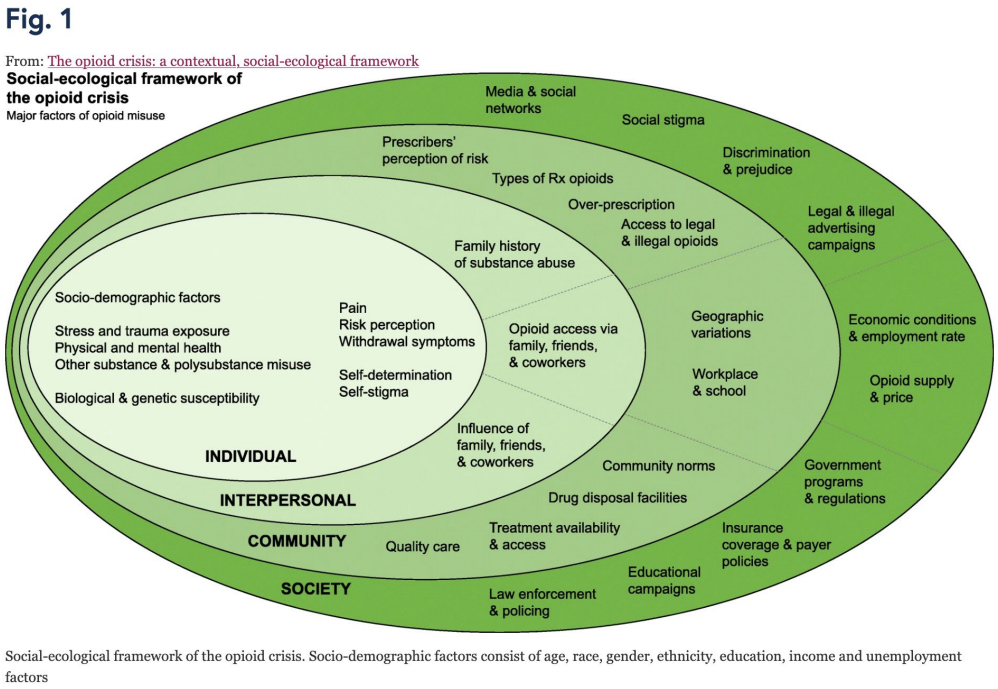
Appendices

Figure 1

Social-ecological framework of the opioid crisis



Note: From "The opioid crisis: a contextual, social-ecological framework," by M.S. Jalali, M. Botticelli, & R.C. Hwang, *et al.* 2020. *Health Research Policy and Systems.* **18 (**87) (https://doi.org/10.1186/s12961-020-00596-8). This unmodified image from was reproduced in accordance with terms of use listed the Creative Commons Attribution 4.0 International License. To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/

Table 1

Survey 1 Open-ended questions

Prompt: Please describe your knowledge of hepatitis C virus

1.A) How is HCV spread/contracted?

1.B) What is the course of illness after contracting HCV? What are the effects on health?

1.C) What treatment options/outcomes are available for patients with HCV?

1.D) Other information/please use this space to describe other information you would like to know/ask any questions you may have regarding HCV

2.A) What do you perceive the barriers that patients encounter in regard to screening and treatment for HCV?

2.B What can we do as an organization to address these barriers in order to improve treatment to our clients?

Table 2

Staff knowledge of HCV transmission

Theme	Frequency
IVDU/sharing needles	7
Needlestick injuries	5
Sexual contact	5
Contact with blood	3
Mother to child	2
Sharing personal items	2
Bloodborne pathogen	2
Transfusion pre 1992	1
Receipt of clotting factor pre 1987	1
Organ transplant	1
Unsafe tattooing	1
Bodily fluids	1
Blood	1

Table 3

Staff knowledge of HCV disease outcomes

Theme	Frequency
Liver damage	6
Jaundice	3
Hepatitis	3
Liver cancer	2
Cirrhosis	2
Fatigue	2
Acute vs chronic	2
Non-specific symptoms	2
Anemia	1
Brain issues	1
Reduced bile	1
Immune issues	1
Death	1
Elevated liver enzymes	1
Liver failure	1

Table 4

Staff knowledge of HCV treatment and outcomes

Theme	Frequency
Medication	3
New medication	3
Antivirals	2
Interferon	2
Curable	2
Good success rate	2
Well tolerated	2

Table 5

Staff perceived barriers to care for HCV

Theme	Frequency
Lack of access to care	5
Lack of knowledge	3
Lack of trust	3
Active addiction	2
Transportation	1
Shame	1
Lack of healthcare	1
Day-to-day stability	1

Table 6

Staff solutions to perceived barriers

Theme	Frequency
Education	4
Provide treatment	4
Transportation	1
Staff attitude	1
Same day reminder calls	1
Syringe services	1
Housing services	1

Table 7

Themes identified among staff knowledge of HCV

Response: How is HCV spread?	Thematic Coding
Blood borne pathogen	Bloodborne pathogen
blood to an open wound, sharing needles, needle stick, sexual contact with a person infected, a mother can pass it to her child. If you use a toothbrush that has also been used by a person infected and you have an opening in your gums	Blood to open wound Sharing needles - IVDU Needlestick Sexual contact Mother to child Sharing personal items
Blood/ injections, dried blood, sharps	Blood Injection drug use Dried blood Needlestick
Contaminated sharps, dried blood, rarely sexual contact.	Sharing needles - IVDU Needle stick Dried blood Sexual contact
From my note template I built regarding HCV care initial visits: Injection drug use past or present, blood transfusion or organ transplant before 1992, receipt of clotting factor concentrates before 1987, needlestick injuries, transmission from mother: any family members with hx, statistically less	Injection drug use Blood transfusion pre-1992 Organ transplant Clotting factor pre-1987

often from: HCV+ sexual partner, sharing personal items (ex: razor, toothbrush) with person with HCV, non-professional tattoo,	Needlestick Mother to child Sexual contact Sharing personal items Unsafe tattooing practices
IV substance use	Injection drug use
Bodily fluids	Bodily fluids
BBP (IV, sharps, STD)	Bloodborne pathogen Injection drug use Needlestick Sexual contact
Sexual contact, IV drug use primarily	Sexual contact Injection drug use

Table 8

Themes identified among staff knowledge of HCV disease process

Response: HCV course of illness; effects on health?	Thematic Coding
Brain issues if in liver failure, immune issues, jaundice, anemia or bleeding, reduced bile	Brain issues Liver failure Immune issues Jaundice Anemia Reduced bile
sometimes Hep C can be a short-term illness or it may become acute or a chronic infection. It can cause liver damage or, cirrhosis, liver cancer or death.	Acute vs Chronic Liver damage Cirrhosis Liver Cancer Death
Liver damage; fatigue; hepatitis	Liver damage Fatigue Hepatitis
Fatigue, elevated liver enzymes, hepatitis.	Fatigue Elevated liver enzymes Hepatitis
most commonly long slow progression of liver damage typically without symptoms recognizable to the patient as HCV symptoms, and if untreated for long enough some patients can develop some of the more concerning	Acute vs Chronic Liver damage Non-specific symptoms

outcomes of cirrhosis which when severe enough can lead to liver failure, as well as hepatocellular carcinoma	Cirrhosis Liver failure Hepatocellular carcinoma
liver damage	Liver damage
Progressive liver impairment	Liver damage
Inflammation of the liver affecting our filtration system, allowing toxins to build up in the body. Causing jaundice,	Hepatitis Jaundice
Some do not develop any symptoms. Some develop symptoms of a cold/flu at the beginning. Over time, people can develop jaundice as the illness destroys their liver.	Non-specific symptoms Jaundice Liver damage

Table 9

Themes identified among staff knowledge of HCV treatment

Response: treatment options/outcomes for HCV?	Thematic Coding
Antivirals	Antivirals
anti-viral medications have a very good success rate with few side effects	Antivirals Good success rate Well tolerated
Medication	Medication
Interferon, two new oral medications.	Interferon New medications
oral medication that is well tolerated and covered by WA 28edicaid and has cure rates in the upper 90's percent in most populations.	Medication Well tolerated Good success rate
Mavyret	Mavyret (New medication)
Medication	Medication
There are now several options, most recent a pill taken for a period of time, making Hep C undetectable, older version is interferon.	New medications Curable Interferon
There is now treatment available that can cure it.	Curable

Table 10

Themes among staff perceived barriers to treatment for HCV

What do you perceive the barriers that patients encounter in regard to screening/treatment for HCV?	Thematic Coding
Lack of understanding of disease	Lack of knowledge
Transportation to provider appointments, shame	Transportation Shame
No access to treatment	Lack of access to treatment
Distrust of medical establishment, lack of education regarding severity of condition	Distrust of medical establishment Lack of knowledge
(1) lack of effective, accessible, trusted primary care that treats HCV directly at primary care (2) lack of access to specialists due to geography, difficulty scheduling, lack of trust in unknown clinic, (3) sometimes lack of adequate healthcare coverage (4) prior experiences of stigma and various forms of inappropriate and alienating treatment by medical staff and medical systems that can lead patients to not feel open and trusting about accessing medical care. (5) Sometimes lack of understanding of the nature of the condition and its course and potential significance even if at this time it is not producing recognizable symptoms for the patient. (6) longer list of	Lack of access to care Lack of specialists due to geography Lack of healthcare coverage Past experiences with medical field Lack of trust Lack of knowledge

barriers to accessing any outpatient treatment of chronic disease applies here as well .... and the list could certainly go on	
Day to day stability	Day to day stability
Lack of follow through while in active addiction	Active drug use
Active drug use, I feel some providers are hesitant on treating Hep C when someone is using the needle	Active drug use
Access to health care, lack of primary care providers for high-risk populations	Lack of access to care Lack of primary care providers for high risk population

Table 11

Themes among problem-solving for barriers to treatment

Response: What can we do as an organization to address these barriers?	Thematic Coding
Class 1 month after admit	Education
offer transportation to appointments, reminders the day of the appointment to the individual. Make sure all staff are treating individuals with love.	Transportation Same day reminder calls Staff attitudes
Education, provide treatment	Education Provide treatment
Improve education	Education
Work to improve access to HCV treatment in every primary care clinic and connection to care in other settings (syringe service programs, various community institutions) so that a patient's most trusted healthcare or health service location becomes an effective place to access HCV treatment. Analogy: if everyone with diabetes had to go to an endocrinologist for treatment how many fewer patients with diabetes would receive treatment?	HCV treatment by primary care Syringe services
housing support	Housing support
Offer RX and share benefits of treatment	Education Provide treatment

Look at offering treatment in Jail, Inpatient treatment	Expand treatment to inpatient or jail
Education	Education

Table 12

Survey 2 results; reaching a consensus on barriers low to high impact

Barrier	Mean	Std. Dev	Variance	Min	Max
Lack of education - Disease process	58.25	25.97	674.19	10	100
Lack of education - Severity of disease	60.75	24.91	620.69	10	100
Transportation to/from medical appointments	75.75	10.76	115.69	54	92
Lack of healthcare coverage (uninsured)	50.88	31.15	970.36	1	90
Lack of primary care providers in geographic area	51.00	20.71	429.00	20	80
Lack of primary care providers for High risk population	63.13	27.81	773.61	9	100
Lack of specialist/specialty providers in geographic area	43.88	33.48	1120.61	2	94
Lack of HCV treatment by primary care	67.50	32.73	1071.00	10	94
Shame or stigma	78.25	15.47	239.44	50	94
Distrust in medical field	74.63	18.81	353.73	31	92
Day to day stability	81.25	17.75	314.94	49	100
Lack of follow through while in active addiction	85.63	16.27	264.73	50	100
Provider hesitancy to treat while active IVDU	48.00	28.05	786.75	0	80

Table 13

Staff perception of presence of barriers in organization

Item

Organization staff have adequate knowledge of disease process, severity, and potential long-term outcomes of HCV including liver cancer and/or liver failure.

Mean	Std Dev	Variance	Min	Max
4.00	1.75	1.60	2	5

Our clients have adequate knowledge of disease process, severity, and potential long-term outcomes of HCV including liver cancer and/or liver failure.

Mean	Std Dev	Variance	Min	Max
2.20	0.98	0.96	1	4

Our clients lack primary care providers

Mean	Std Dev	Variance	Min	Max
3.40	1.62	2.64	1	5

Our organization provides treatment for HCV.

Mean	Std Dev	Variance	Min	Max
4.80	0.40	0.16	4	5

Our organization provides adequate transportation to our clients to/from clinic appointments

Mean	Std Dev	Variance	Min	Max
4.60	0.49	0.24	4	5

Our organization treats clients with respect to build medical trust

Mean	Std Dev	Variance	Min	Max
4.60	0.49	0.24	4	5

Our organization treats clients with respect to decrease shame or stigma.

Mean	Std Dev	Variance	Min	Max
4.80	0.40	0.16	4	5

There is more that we can do as an organization to improve client follow through with treatment while in active addiction.

Mean	Std Dev	Variance	Min	Max
3.60	1.02	1.04	2	5