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Improving access to care for People Who Inject Drugs: Qualitative evaluation of Project ITTREAT, an integrated community hepatitis C service

Hepatitis C PWID community service

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Abstract

Achieving hepatitis C virus (HCV) elimination by 2030 requires an increased linkage to care for people who inject drugs (PWID). Project ITTREAT was established to mitigate barriers to HCV care by providing an integrated service within a local drug and alcohol treatment centre. This study aimed to explore the experiences of clients and staff involved in Project ITTREAT and assess the facilitators and barriers to a community-based HCV service. Between Oct 2014-Apr 2016, drug and alcohol treatment attendees were interviewed using one-to-one semi-structured interviews. drug and alcohol treatment staff took part in focus groups. All data were recorded, transcribed verbatim and analysed using thematic content analysis. Fifteen drug and alcohol treatment attendees with current/previous HCV infection were interviewed and 15 staff members contributed across two focus groups. Drug and alcohol treatment staff and attendees reported that Project ITTREAT facilitated access to HCV care by mitigating previous negative hospital-based experiences. Other key facilitators were positive narratives around HCV care and drug and alcohol treatment attendees being well engaged in their drug/alcohol recovery. Barriers included a lack of stability in drug and alcohol treatment attendees, negative discourse around testing/treatment and stigma associated with attending the drug and alcohol treatment to access HCV treatment in some who had successfully achieved drug rehabilitation. Our findings

indicate the positive impact of an integrated and personalised community-based service delivered by a dedicated hepatitis nurse. This played a crucial role in reducing barriers to HCV care for PWID. Our work also highlights areas for future investment including non-DAT based community services and increasing awareness of new treatments amongst this cohort.

Keywords

Staff/client experience, substance misuse, Hepatitis C virus, community HCV service, barriers, facilitators

Introduction

Hepatitis C virus (HCV) is transmitted by direct blood-blood contact and can cause liver cirrhosis and cancer if left untreated (1). There is currently no effective vaccine. Injecting drug use (IDU) remains the most important risk factor for HCV acquisition and globally 67% of people who inject drugs (PWID) are hepatitis C virus antibody positive (2).

Globally, rates of viral hepatitis deaths (1.4 million/yr) are comparable to those of HIV (1.3 million/yr), malaria (0.5 million/yr) and tuberculosis (1.2 million/yr) (3, 4). After the advent of the highly effective direct acting antivirals (DAA) (5), the WHO launched the Global Health Sector Strategy (GHSS) in 2016, with the aim of eliminating viral hepatitis as a major health burden by 2030 (3). This strategy tasked countries with diagnosing 90% and treating 80% of those with HCV by 2030 (3).

In England, liver disease from HCV infection is a major health burden with approximately 113,000 individuals infected (6). Almost all those with chronic HCV infection in England (92%) have a history of IDU with approximately half of all PWIDs infected (6). In the 2017 Unlinked Anonymous Monitoring (UAM) survey, of those PWIDs aware of their HCV antibody status, 72% reported having ever seen a Hepatologist. Of these, 42% accepted and commenced treatment, 34% declined the offer of treatment and 23% were not offered treatment (7).

Access to DAAs has been gradually rolled out via Operational Delivery Networks (ODNs), led by NHS England (8). Since DAAs first became available in 2014, treatment numbers have increased

dramatically in England; from approximately 5100 people receiving HCV treatment annually (2008-2014) to 15, 506 between 2015-2017 (7). However, despite more PWIDs being aware that they have HCV infection (an estimated two thirds now know their status) (7), good evidence of the efficacy of DAAs in PWIDs (9, 10), and low rates of reinfection, the numbers of PWIDs accessing treatment remains low (7, 11-13). The vulnerable and disenfranchised nature of PWIDs and poor engagement with hospital services undoubtedly contributes to this (14-16).

Barriers to PWIDs accessing HCV treatment have been explored in a number of contexts and are summarised at the patient, provider and national levels in Figure 1 (17). If the UK is to achieve WHO targets, engaging, testing and treating this hard-to-reach cohort is essential. In the UK, intermittent HCV outreach programmes (from hospitals into local drug and alcohol treatment [DAT] services) have been shown to be safe, cost effective, with good uptake and treatment outcomes similar to, and in some cases better than, secondary care (18-21).

In 2013, Project ITTREAT was established within a DAT service and aimed to assess the feasibility of delivering an HCV service in the DAT by collecting real world clinical, patient reported, health economic and qualitative outcomes (17). Here we report on the qualitative study exploring the experiences of DAT clients and staff of Project ITTREAT, assessing the facilitators of and barriers to service use and whether the service provided by Project ITTREAT overcomes recognised barriers to HCV care

Methods

Study setting and intervention background

Project ITTREAT commenced in Dec 2013 as a two-year project but was subsequently extended for a further period of six years (until Dec 2021). Interviews and focus groups were all conducted by an experienced qualitative researcher (CJ) between October 2014 and April 2016 as a concurrent embedded qualitative study.

The process of the service set up has been previously described (17). In summary, ITTREAT was located at one of the largest urban DAT service in South East England. A full-time, experienced hepatitis nurse (equivalent to band 7 in the NHS structure) (MOS) (working Monday-Friday) provided blood borne virus (BBV) testing using finger prick dry blood spot testing and hepatitis B

virus vaccination to DAT attendees. If qualitative HCV PCR was positive, individuals were contacted (via phone or in person) and offered HCV quantitative PCR/genotype, blood tests, assessment of hepatic fibrosis using a portable FibroScan® 402 (Echosens) (non-fasting) and HCV treatment, at the DAT, under Hepatologist (SV) supervision. Clinics offered were 'one-stop' flexible and run on a 'drop in' basis. All participants were provided with a contact phone number for the HCV nurse. DAT staff were also trained by the HCV nurse to perform BBV screening. Psychiatric input, opioid substitution therapy (OST), social/peer mentor support and a needle syringe programme were offered onsite by the DAT. The HCV nurse worked closely with other health care professionals both within the community (e.g. GPs and DAT care-co-ordinators) and the hospital-based services (e.g. vascular access team, gastroenterology pharmacy team). Unique aspects of Project ITTREAT therefore were a dedicated, full-time hepatitis nurse based at the DAT who provided a personalised and holistic service in an integrated manner effectively linking all components of care. Those with ongoing drug and alcohol use were eligible for HCV treatment, as long as they were willing to engage.

Interviewee recruitment

Study participants included DAT attendees and staff. DAT attendees were eligible if they had been offered and/or were engaged in the HCV service provided there. DAT attendees were purposively sampled to include those who had historically declined, were waiting to start, were currently receiving and who had completed HCV treatment. Interviews were conducted before, during and after DAAs were made available.

All staff based at the DAT (excluding the HCV nurse) were invited to one of the two focus groups where informed consent was taken by the qualitative researcher (CJ). While all staff were invited (by the HCV nurse) to participate in the study, only those available on the dates planned for the focus groups were recruited, utilising a convenience sampling approach.

DAT attendees to the HCV clinic and DAT staff were approached by the HCV nurse, who provided a copy of the participant information sheet and, with their consent, passed their contact details to CJ. Eligible and interested DAT attendees were contacted by CJ to arrange a convenient time for an individual interview, at which time informed consent was taken

Interviews (for HCV clinic attendees) and focus groups (for DAT staff) took place in a private room within the DAT service.

Data collection

The interviews and focus groups were semi-structured, with the interviewer following a topic guide (see supplementary information). Interviews with DAT attendees lasted between 30 -60 minutes and topics included history of IDU, experience of initial HCV diagnosis, barriers and motivators to engaging in HCV testing and treatment, experiences of other healthcare services including in the community and areas of future service improvement. Each focus group lasted an hour and included topics such as the challenges in HCV testing and treatment uptake, experiences of hospital and community-based services and areas of future service improvement.

Data analysis

Transcripts from DAT attendee interviews were analysed first. Staff focus group transcripts were incorporated into the analysis once completed. Thematic content analysis was performed using Burnard's 14-stage method (22). To begin with the verbatim transcripts were coded openly to generate as many themes as possible. The themes that emerged were partly deductive, reflecting the research objectives, and partly inductive emerging during data familiarisation. A thematic framework was then constructed. To ensure reliability, data were initially analysed by JS, the themes were then compared and discussed with CJ, to develop an overall analytical framework for the DAT attendee interviews and DAT staff focus groups.

Ethical approval

Ethical approval for the study was obtained (NRES Committee East Midlands - Derby REC ref 13/EM/0275). All participants gave signed, informed consent.

Results

Tables 1 and 2 show demographic and additional data of DAT clients interviewed and staff that took part in the focus groups. The DAT clients entirely described themselves as white (100%), males (80%) with 40%

aged 35-44 yrs and 40 % aged 45-54 yrs. Overall 7 (47%) were currently unemployed. All were either past (n=12) or current (n=3) PWID. Two had completed successful addiction rehabilitation, for the remaining recovery was ongoing. Overall 9 (60%) had either already completed or were currently receiving HCV treatment. Of the 15 interviews, 11 were conducted from 2014-15 during the transition from interferon to DAA based regimens, with the remaining completed in 2016. The majority of clients interviewed had received/were receiving interferon-based HCV treatment (7/9, 78%).

Fifteen staff members took part in the focus groups, equally split amongst males and females (seven and eight respectively). The majority, 10 (75%), were aged 45-54 yrs with 14 (93%) describing themselves as white. Duration of employment at the DAT ranged from 1 -20 years.

Facilitators of accessing HCV care via Project ITTREAT

This comprised four principal themes and 15 sub-themes (figure 2)

1) Trusting client-provider relationships

The close relationship between clients and their keyworker/care-coordinator at the DAT was clear from the interviews and focus groups. This relationship acted as an entry point into HCV care; staff described initiating discussions around HCV care and then referring clients to the on-site hepatitis nurse once they were ready to engage. Interestingly, staff perceived themselves as 'sellers' of HCV care.

"Well it's down to us to sell it isn't it [HCV testing and treatment]? Because if we don't sell it, it won't happen. It's basically that." (DAT Staff member, focus group 1)

The relationship between clients and the HCV nurse was central to their engagement with Project ITTREAT. Participants valued the 'non-judgemental', 'personal' and 'friendly' approach of the HCV nurse. The interviews highlighted the importance of a holistic and personalised approach when engaging clients; the HCV nurse supported clients' housing applications and mental health needs as well as their HCV treatment.

"I mean, I have to say I think [HCV Nurse] is one of the main people behind and she's, she's so friendly and nice that she just puts you at ease anyway. There's not like, you're not dealing with fearful doctors with a sense of impending doom on all sides." (Participant 3, 20 months since diagnosis, untreated)

Importantly, despite poor engagement with health services, for two participants a trusting relationship with their GP facilitated entry into HCV care.

"I'd prefer to be seen at the doctors...the GP I've got now, yeah, she's really she's brilliant...Yeah, many a time I've gone to the surgery and I've been in there twenty minutes half an hour, just emptying, emptying in front of her. And she's really good, she listens" (Participant 15, 11 years since diagnosis, completed treatment)

The focus groups also highlighted the importance of the close relationship between DAT staff and the HCV nurse, facilitating a greater awareness of HCV within the service.

"Having someone here in the building just makes a huge difference; to be able to ask questions and get information about Hepatitis when people ask things. It just raises, I think all of our kind of awareness of it." (DAT Staff member, focus group 1)

2) Hepatitis C care as part of the recovery pathway

Both clients and staff perceived HCV treatment as the natural, next step in the recovery pathway. Successful recovery from drug and alcohol addiction empowered clients to seek HCV treatment.

"When people have gone into residential, and then one of their next goals that people often have, is when they leave residential, is then to address their hepatitis issues." (DAT staff member, Focus group 1)

"When I got myself clean and thought to myself; now or never. You never know what could happen, in the future. While I'm headstrong at the minute; I'll just go for it."
(Participant 4, 7 years since diagnosis, on treatment)

HCV infection was inextricably linked to drug use; once stable in addiction recovery, participants expressed a desire to disassociate themselves from the stigma attached to HCV infection.

"I suppose some of it ties into the stigma again, you know I wanted to be clear and, you know, as free from anything drug-related...as quickly as possible." (Participant 1, 4 years since diagnosis, completed treatment)

Following recovery, participants expressed both a greater awareness of the health impacts of untreated HCV and a heightened sense of their own mortality. Without withdrawal symptoms,

clients were more likely to attribute their physical symptoms to HCV, which acted as a motivator to seeking treatment.

"I didn't want to have hepatitis, I don't wanna die young, do you know what I mean. Like, I've had it for a long time, and you know, I don't, like, I'm only like 49 now or 48, something like that. But, like, I'm not old, do you know what I mean, and I'm not young- I'm middle aged. So I wanna, I'd love to have some time without the hepatitis, I'd love to get it out of me body cos I've seen someone die of hepatitis and it's not very nice."

(Participant 5, 15 years since diagnosis, completed treatment)

One client reported not having understood the seriousness of HCV until he engaged with the DAT and the recovery process.

"I didn't really understand the seriousness of Hep C till I started like seeing...someone at the [DAT] about it and then I got linked in with [HCV nurse]. I started realising this isn't something you can just shrug off like I've done for ten years.. (Participant 12, 10 years since diagnose, 10 weeks into treatment)

3) Mitigation of previous negative experiences of secondary care

Clients expressed reluctance to engage in hospital-based health services, for both their general health and for HCV treatment, but Project ITTREAT mitigated many of these issues for clients and staff. Mistrust, fear and bad experiences of hospitals were widely reported:

"I don't like hospitals. I only ever go to hospital if I'm dying." (Participant 11, 6 years since diagnosis, untreated)

"It's the association as well, I think for our client group as well being in hospital- you know a lot of negative experiences: you know memories of overdosing and nearly dying." (DAT staff members, focus groups 2)

"And you do hear people talking about their bad experiences: feeling judged up at A&E. I think self-worth and self-esteem has got a lot to do with going up to the hospital: 'I'm not

worthy of their time', 'these other people are- mine's self-inflicted', 'why should they care about me?'" (DAT staff member, focus group 1)

Being able to access HCV care without having to attend the hospital-based services was positively welcomed:

"Down here's better I think: cos it's all in one place. You know, it's all- it's all in the one building. Instead of being up here and then you've gotta come down here and then you've gotta go there and then here; things'll get confused" (Participant 7, 1 year since diagnosis, untreated)

[Talking about hospital service] *"Much, much more medicalised, much more; this feels much more community orientated. Um, you know, there nurses felt like nurses and...yeah it was going to hospital, you know and having your regular appointment at the hospital...I mean it felt like that". (Participant 8, 4 years since diagnosis, untreated)*

Hospital-based bureaucracy emerged as an important system-level barrier, especially the inconvenience of travelling to hospital, inflexibility of appointment times and lengthy appointment waits. These were overcome by the flexible approach adopted by ITTREAT:

"If you're being seen in outpatients at the [Hospital] and you miss an appointment- that's it. Whereas with [HCV nurse] she'll call you again and again and you can have three goes before you see her. Whereas with the [Hospital] they have an appointment system that doesn't work like that." (DAT staff member, focus group 1)

"I thought it was a little less, err, impersonal. You just feel like you're a cow being forced through, like a sheep dip kind of system in hospitals. But here you know they know your name and they're a little bit more personal with you. I think a little bit more caring cos they have a little bit more time" (Participant 2, 1 year since diagnosis, on treatment)

Staff members also described a lack of coordinated care between hospital Hepatology services and the DAT which Project ITTREAT helped alleviate:

"It's communication as well: [The hospital department] wouldn't necessarily have all the facts to hand, whereas [HCV nurse] can speak to care coordinators on a one to one" (DAT staff member, focus groups 1)

4) Positive narratives of HCV care

Clients and staff members discussed the influence of 'word of mouth' stories of HCV treatment from peers within the recovery community. Traditionally, negative stories have dissuaded clients from seeking treatment, but positive narratives encourage participants to engage in care, especially, clients' experiences with DAAs.

"[HCV nurse] was just saying- she's had an uptake in Scottish people- cos they know each other in the community and cos one of them has had the treatment with [HCV nurse]: now she's had one or two people from the same little social circle turning up. And yeah so, it is word of mouth" (DAT staff member, focus group 1)

"It's just general, you just sit and talk, but everybody's raving about this new stuff, everybody claims that 'oh I know someone that's done it'." (Participant 14, 6 years since diagnosis, on treatment)

"I found out about the new treatment that's available, and thought I'd wait. And then I forgot about it; conveniently shoved it in that place that you don't think about it, and [Hepatitis C nurse] called me and said, 'do you wanna go up for a trial on this?' So were just waiting to hear... I think it's here, well it's through [Hepatitis C nurse] - she'd be able to tell you and it's the shorter treatment and it doesn't have the depression side effects. And to be honest I'd wait years for that treatment, rather than take the risk of having the negative side effects..." (Participant 3, 20 months since diagnosis, untreated)

Barriers to accessing HCV care via Project ITTREAT

This comprised of 3 principal themes and 8 sub-themes (figure 3)

1) Lack of stability

The notion of instability emerged as a central theme in preventing participants from accessing HCV treatment whereby social circumstance competed with health needs. This included homelessness or lack of permanent accommodation, unemployment, and time spent in prison:

“But because erm, my life was just chaos at the time- I was homeless, I was trying to hold down a job and...yeah it was just sort of really impossible for me to kind of have enough consistency to start doing the treatment” (Participant 2, 1 year since diagnosis, on treatment)

“I think accommodation, people’s stability around accommodation and things like that: having to have a fridge, you know, a personal space, that sort of thing. Having somewhere where it’s safe to have a parcel to be delivered” (DAT staff member, focus group 1)

Furthermore, emotional instability due to complex mental health problems, lack of strong social networks and, in particular, ongoing drug and alcohol use were perceived to be a key factor in determining clients’ stability to engage in treatment.

“It’s not your first priority. Your first priority when you’re out there is to score more drugs. Comes above and before everything. So getting rid of a blood borne virus which you might catch the next day anyway...fighting a losing battle.” (Participant 11, 6 years since diagnosis, untreated)

“I think lots of people that are homeless on the streets, there’s this almost, I can only think of one word and its cavalier. You know, ‘I know I’ve got Hep C but you know: what’s the point? I’m using all these drugs.’ Just to manage my situation in the here and now. And you know, treatment options are way down their list of priorities really.” (DAT staff member, focus group 1)

2) Stigma

Stigma, relating to HCV diagnosis, led to an initial reluctance among participants to accept the diagnosis and therefore a delay in accessing information and treatment. Before engaging with the community service, participants reported very little knowledge of the health consequences

of HCV. Interviewees also described their unwillingness to disclose their diagnosis to friends, family members and partners.

I haven't told anyone about it [HCV]. Cos I'm frightened of the stigma comin back, do you know what I mean? (Participant 5, 15 years since diagnosis, completed treatment)

One important barrier to engagement with Project ITTREAT that emerged was the stigma associated with the physical premises of the DAT. This was particularly evident amongst participants who were stable in recovery, no longer perceiving themselves as “drug addicts”. This led some participants to express their preference for a separate, non-DAT-based community HCV service.

“Yeah, I used to have that a lot, kind of walking up the steps at the traffic lights and there are kind of loads of cars, kind of gridlock, and you know you're almost advertising yourself as like an addict walking up the steps.” (Participant 13, 2 year since diagnosis, completed treatment)

“I think it would be better if they had just a hepatitis place that they concentrate on hepatitis. And then you've got your drug place, where you go for your methadone, and all that. I think it should be, like, separate...” (Participant 5, 15 years since diagnosis, completed treatment)

3) Negative discourse around testing and treatment

Participants described negative anecdotes from their peers, of hepatitis testing and treatment revolving around risk of substance misuse relapse, interferon related physical and mental side effects, length of the treatment course and need for liver biopsies.

“well yeah, getting tested like with the biopsy thing, cos I was told some quite nasty things that it gets stuck right into you and it has to cut a bit of your liver out and it's like...yeah it seems sort of like quite painful and quite horrible really.” (Participant 10, 8 years since diagnosis, untreated)

[Discussing the risk of relapse] *“I really don't wanna take interferon. I really am absolutely petrified of it. Because I've, over the last 18 months I've built up so much of a normal life.*

My children talk to me as though it never happened...I cannot rock that boat.” (Participant 3, 20 months since diagnosis, untreated)

“Yeah, and its side effects, cos back then as well it was all interferon and people were telling me it’s like chemotherapy: you’re gonna lose your hair and all sorts. And I was thinking, I don’t feel ill- I’m not putting myself through all that” (Participant 14, 6 years since diagnosis, on treatment)

Discussion

This qualitative evaluation of Project ITTREAT highlights how our community hepatitis clinic successfully facilitated DAT attendees to access HCV treatment, removing barriers, specifically those at the provider level (figure 1). The presence of a dedicated provider, positive narratives of HCV treatment from peers and stability within drug/alcohol recovery were all important facilitators and motivators that enabled DAT attendees to address their HCV diagnosis and access treatment. Lack of personal stability, negative stories from peers about HCV treatment and stigma remained important barriers to accessing HCV care, despite our intervention. An unanticipated barrier for those who had graduated from drug use and OST treatment was the stigma generated by locating the community hepatitis clinic within the DAT.

The time period for this qualitative study (Oct 2014 - Apr 2016) spanned the transition from interferon-based treatments to combinations of interferon and DAAs and finally interferon-free DAA regimens. The facilitators and barriers identified therefore reflect this whole time period. Most facilitators were related to project ITTREAT itself (trusting client provider relationship, HCV care as part of recovery process, mitigation of previous negative experiences of secondary care) while others such as the theme ‘positive narratives of HCV care’ were reflective of both project ITTREAT and the newer treatments, as these are inextricably linked. Negative discourse around HCV treatment was largely related to the older treatments and liver biopsies, whilst stigma attached to the clinic location, the DAT, was specific to the ITTREAT project. Stigma of HCV and lack of stability to engage with HCV treatment were general barriers reported in this cohort, not specific to either project ITTREAT or the changing treatment landscape.

A flexible, trusting client-provider relationship helped alleviate patient and provider level barriers and was central to DAT attendees engaging with Project ITTREAT. This finding closely mirrors those reported previously (19, 23, 24). The importance of this flexible approach to delivering HCV care to PWIDs cannot be underestimated. Particularly noted was the central relationship between the HCV nurse and DAT attendees, which was crucial in client engagement, as also observed by others (24). Being located in the DAT full-time also allowed for close working relationships between the HCV nurse and DAT staff, enabling effective working relationships and more holistic provision of care for clients in drug and alcohol recovery. This not only raised awareness and the profile of HCV amongst DAT staff but also enabled the adoption of a 'shared-care' approach and smooth referral between services. In summary, these relationships, and the removal of bureaucratic barriers allowing for flexible working, created an accessible environment for DAT attendees to engage with Project ITTREAT. These findings are corroborated by the ETHOS study, which found that an engaged clinician and accessible treatment pathway were key facilitators of engagement (16).

However, while studies have shown that community-based interventions result in an increase in HCV treatment, overall treatment uptake remains low (25-27). This could be partly related to lack of co-location of HCV screening and treatment, inflexible clinic timings and not involving peer mentors (25-27). ITTREAT provided an integrated test and treat service with "drop in clinics" where PWID engaged with the same nurse. In the absence of interferon or liver biopsies as barriers to treatment, we anticipate our model of care delivery provides an unprecedented opportunity to increase treatment uptake in this cohort in the era of DAAs.

Lack of stability emerged as a major barrier to HCV care and has been reported elsewhere (14, 23, 24). This included physical instability (such as housing), psycho-social instability and in particular drug and alcohol use. Accessing HCV care became a priority once stability was achieved, including those who were on the recovery pathway. The intention to address health issues once in recovery has also been reported in a study evaluating the barriers to PWIDs accessing sexual health services (28). Thus, by placing health services at the DAT, as in Project ITTREAT, services are perfectly placed to respond in a timely manner to clients who are ready to engage with HCV (and other health) care during their recovery. This was described as 'timeliness'

by Harris in 2018 and appears to be a generalizable finding (24). Identifying these time points and developing an accessible service for clients has the potential to improve health outcomes in this cohort.

The stigma perceived by PWID remains an important barrier to accessing HCV care (29). This could be at a personal level (related to drug use) or the discriminatory attitude of health care providers (30, 31). This is often coupled with limited education amongst clinicians regarding addiction (29). In addition a novel finding from our study revealed the distinct and contrasting attitudes towards the DAT. Whilst some who had graduated from drug use felt attending the DAT and integrating with others who were in the early stages of recovery, reinforced their successful recovery, others felt it put them at risk of relapse and of being unable to escape the label of a 'drug addict'. This stigma around engagement with the DAT was identified previously in a 2012 WHO study (23). It must therefore be acknowledged that "one size does not fit all", and the emphasis should be on the provision of personalised care. As suggested by some participants, stigma of the DAT could be overcome by offering an HCV service in a 'half-way house' somewhere between the hospital and DAT. This was the main area of potential service improvement identified by participants. Some DAT attendees reported strong relationships with their GP and reported a preference for the anonymity a GP surgery provides. There is a growing body of literature demonstrating that HCV treatment can be effectively delivered through primary care, with or without OST services (14, 19, 32). This is thus a useful and potentially important avenue for future service development.

Additionally, stories shared within the substance misuse community shaped participants' perceptions of HCV testing and treatment. While negative stories were reported in this study, these largely referred to the now obsolete interferon-based treatment and liver biopsies. At the time of this study, HCV treatment was transitioning from interferon-based treatment to DAAs (the majority of the interviewees received interferon-based regimens), thus discourse on the new DAAs was limited. Importantly, these peer networks also disseminated positive narratives around HCV treatment, motivated others to access care and some participants reported hearing positive stories of the new DAAs via the recovery community. Previous research has identified the influence of 'word of mouth' stories among populations of PWIDs (16, 33, 34) and increasing

evidence in the literature supports a role for peer mentors in improving treatment knowledge and uptake (27, 35-37). With the introduction of the *FibroScan*® for non-invasive assessment of hepatic fibrosis and better tolerated pan-genotypic DAAs there is an opportunity to harness the influence of peer networks to dispel the negative discourse around HCV testing and treatment.

Finally, concerns regarding reinfection remain a barrier to initiating HCV treatment amongst PWID, particularly for clinicians. However as shown by others (10, 38, 39) reinfection rates remain low in PWID (< 3/100 person years) especially if there is timely introduction of opioid substitution therapy. This again emphasises the importance of integrated services when engaging PWID in HCV treatment.

This study had limitations. Participants were initially approached by the HCV nurse who was the principal clinician running Project ITTREAT at the DAT. Loyalty to the nurse may have biased responses and may have, inadvertently, led to selective recall. Secondly, the client's perspective comes only from DAT attendees of Project ITTREAT, and therefore excludes the experiences of DAT attendees not engaged in the HCV treatment service provided by the project. Thirdly, DAT staff volunteered to take part in the focus groups, potentially self-selecting those with the greatest interest or strongest views on HCV services, and again potentially clouding responses. Additionally, only staff able to attend on the days of the focus groups were recruited, possibly introducing bias. Furthermore, data collection took place within the DAT which may have resulted in a potential reporting bias in interview responses, although the qualitative researcher was independent to the DAT. Finally, since most participants were in recovery and received interferon-based treatment, we were unable to assess in detail the impact of recovery status and the advent of DAAs on attitudes and perceptions amongst clients and staff. This study was conducted in one geographical region of the UK; however, its findings are corroborated by observations from other national and international studies (16, 24).

Future research needs to focus on how best to encourage collaborative working between DAT and hepatology communities; raise the profile of community models of care to enable national adoption; eliminate the still persisting stigma towards PWID; effectively educate PWID and healthcare providers about DAAs; dispel antiquated myths about older treatments and liver biopsies and, finally, investigate how or where a 'half-way house' HCV clinic may be best located.

In summary this study illustrates the barriers and facilitators amongst DAT staff and attendees of a community HCV service embedded within a DAT. This has important implications for policy makers and regional ODNs tasked with allocating resources to achieve HCV elimination. HCV treatment as part of drug and alcohol recovery pathways is now feasible, particularly in light of the new safe and effective DAAs that are increasingly available. If HCV elimination is to be achieved, engaging PWID in care by a movement towards community-based services, and away from historic hospital-based settings is essential.

Figure and table legends

Figure 1. Barriers to care in individuals/PWID with hepatitis C virus infection

Figure 2. Facilitators to accessing treatment and testing via ITTREAT project. Major headings relate to the principal themes, and the right-hand column the sub-themes

Figure 3. Barriers to accessing treatment and testing via ITTREAT project. Major headings relate to the principal themes, and the right-hand column the sub-themes

Table 1. Demographics of DAT attendees

Table 2. Demographics of DAT staff

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Table 1. Demographics of DAT attendees

ID	Age/ Gender	Injecting status	Addiction rehab	Employment status	Occupation	Ethnicity	Years since HCV diagnosis	HCV Treatment status	HCV Treatment received
001	35-44 M	Ex PWID	Ongoing	Student	P/T Youth offending service	White	4	Complete	Peg INF + RBV
002	45-54 M	Ex PWID	Ongoing	FT	Painter	White	1	4 months into treatment	Peg INF + RBV
003	35-44 F	Ex PWID	Completed	Homemaker	(previously chef)	White	20 months	None received	N/A
004	25-34 M	Current PWID	Ongoing	Unemployed	(previously chef)	White	7	13 weeks into treatment	Peg INF + RBV
005	45-54 M	Ex PWID	Ongoing	Not in paid employment due to disability		White	15-20	Complete	Peg INF + RBV
006	45-54 M	Ex PWID	Ongoing	Unemployed	(previously TEFL teacher)	White	2	None received	N/A
007	35-44 M	Ex PWID	Ongoing	Other	Big Issue seller	White	1	None received	N/A
008	45-54	Current	Ongoing	Not in paid	(previously social	White	4	None received	N/A

	F	PWID		employment due to sickness	worker)				
009	25-34 M	Ex PWID	Ongoing	FT	Scaffolder	White	5	5 weeks into treatment	Peg INF + RBV
010	35-44 M	Ex PWID	Ongoing	Other	Voluntary worker	White	8	None received (awaiting start)	N/A
011	25-34 M	Ex PWID	Ongoing	Other	Voluntary worker	White	6	None received	N/A
012	35-44 M	Ex PWID	Ongoing	Other	Intern – support worker (drug & alcohol services)	White	10	10 weeks into treatment	SOF/LDV + RBV
013	35-44 M	Ex PWID	Completed	Unemployed		White	2	Complete	Peg INF + RBV
014	45-54 F	Current PWID	Ongoing	Unemployed		White	6	5 weeks into treatment	SOF + DAC + RBV
015	45-54 M	Ex PWID	Ongoing	Unemployed	(previously roofer)	White	11	Complete	Peg INF + RBV + SOF

*Abbreviations: F/T = full time, P/T = part time, PWID = person who injects drugs, TEFL = teaching English as a foreign language, PEG IFN = pegylated interferon, RBV = Ribavirin, SOF = Sofosbuvir, DAC = Daclatasvir, N/A = not applicable.

Table 2. Demographics of DAT staff

ID	Age	Gender	Employment status	Job title	Duration employed at DAT (years)	Ethnicity
001	45-54	F	FT	Community nurse	14	White
002	35-44	F	FT	Community nurse	2	White
003	45-54	M	FT	Engagement and recovery worker	>10	White
004	45-54	F	FT	Senior community practitioner nurse	8	White
005	45-54	F	PT	Community nurse	1	White
006	45-54	M	FT	Community charge nurse	9	White

007	35-44	M	FT	Community charge nurse	11	White
008	55-64	M	FT	Engagement and recovery worker	14	Other
009	25-34	F	Other – bank staff	Community nurse	>1	White
010	45-54	M	PT	Drug and alcohol care coordinator	1 ½	White
011	55-64	F	FT	Community nurse	5	White
012	45-54	F	PT	Community charge nurse	20	White
013	45-54	M	FT	LGBT support worker	5	White
014	45-54	F	PT	Community charge nurse	10	White
015	45-54	M	FT	Care co-ordinator	2 ½	White

* F/T = full time, P/T = part time

Patient Level <ol style="list-style-type: none">1. Majority are PWID with poor engagement with secondary care due to chaotic lifestyle and competing priorities2. Asymptomatic nature of the disease3. Perceived stigmatisation and prior negative experiences with health services4. Myths associated with antiviral treatment and liver biopsy
Provider level <ol style="list-style-type: none">1. Failure to understand complex needs of PWID2. Lack of awareness, hence not a priority for health care professionals3. Bureaucratic and inflexible hospital environment4. Prejudice and reluctance to treat those with ongoing alcohol and drug use5. Misconceptions regarding treatment efficacy and reinfection in PWID6. Lack of multidisciplinary approach with suboptimal interactions between addiction specialists and Hepatologists
National level <ol style="list-style-type: none">1. Restricted access to antiviral drugs2. Lack of accurate data on HCV epidemiology

Figure 1. Barriers to care in individuals/PWID with hepatitis C virus infection (17)

Figure 2. Facilitators to accessing treatment and testing via ITTREAT project

Figure 3. Barriers to accessing treatment and testing via ITTREAT project