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Research Paper

Perceptions and concerns of hepatitis C reinfection following prison-wide treatment scale-up: Counterpublic health amid hepatitis C treatment as prevention efforts in the prison setting

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ABSTRACT

Background: Hepatitis C (HCV) infection is highly prevalent within the prison setting. Direct-acting antiviral (DAA) therapies have changed the HCV treatment landscape, offering simple treatment (with minimal side-effects) and high efficacy. These advances have enabled the first real-world study of HCV treatment as prevention (TasP), the Surveillance and Treatment of Prisoners with hepatitis C (SToP-C) study. This paper draws on data from qualitative interviews completed with SToP-C participants following prison-wide DAA treatment scale-up.

Methods: Semi-structured interviews were undertaken with 23 men in prison following HCV treatment completion to identify ongoing risk practices, perceptions of strategies for HCV prevention within the prison setting, experiences of HCV treatment (as prevention), and perceptions of reinfection following cure. Analysis was undertaken using a counterpublic health lens to identify risks and perceptions of reinfection among people treated for HCV within the prison setting.

Results: Participants identified a number of challenges of meaningful HCV 'cure' in the absence of increased access to prevention strategies (e.g., opioid agonist therapy and prison needle syringe programs) along with concerns that 'cure' was only temporary whilst incarcerated. 'Cure' status included self-perceptions of being "clean", while also imposing responsibility on the individual to maintain their 'cure' status.

Conclusion: HCV DAA treatment is provided somewhat under the guise of 'cure is easy', but fails to address the ongoing risk factors experienced by people who inject drugs in prisons, as well as other people in prison who may be at risk of blood-to-blood exposure. Health messaging regarding HCV treatment and treatment for re-infection should be tailored to ensure patient-centred care. Health interventions in prison must address the whole person and the circumstances in which they live, not just the illness.

Introduction

Hepatitis C (HCV) infection is a global public health concern, with an estimated 1% of the world's population living with the virus (The Polaris Observatory HCV Collaborators, 2017). HCV is predominantly transmitted through shared injecting equipment, particularly in developed countries (Degenhardt et al., 2016). As drug use remains a criminal offence in most countries, it is not surprising that people in prison have higher HCV prevalence (15%) (Dolan et al., 2016) compared with those in the general community. Once incarcerated, access to sterile injecting equipment is limited, with those who continue to inject drugs whilst incarcerated very commonly sharing equipment (Cunningham et al., 2017; Larney et al., 2013). Due to the high prevalence of HCV in the prison setting, prisons represent a high-risk environment for HCV acquisition, irrespective of whether a person in custody has a history of injecting drug use (Altice et al., 2016; Champion et al., 2004).

The advent of direct-acting antivirals (DAAs) with minimal side-effects and a curative efficacy of >95% (Falade-Nwulia et al., 2017), has enabled widespread increased access to treatment with high cure rates. In Australia, for example, the Pharmaceutical Benefits Scheme (PBS) listed the DAAs in 2016 to ensure unrestricted access to underpin treatment scale-up, including special provisions for prisoners. This shift in the HCV treatment landscape has inspired international elimination

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efforts, with the World Health Organisation setting targets of 90% diagnosed, 80% treated, and an 80% reduction in incidence by 2030 (WHO, 2016). Consequently, micro-elimination efforts have been established to target small-scale elimination efforts in specific settings such as prisons where prevalence is high (Bartlett et al., 2018; Cuadrado et al., 2018; Lazarus, Wiktor, Colombo, & Thursz, 2017).

While HCV treatment outcomes have significantly improved, few countries internationally make available adequate access to harm reduction equipment (e.g., prison needle syringe programs) and varied access to therapies (e.g., opioid agonist therapy (OAT)) to reduce the spread of HCV (and other blood-borne viruses) in the prison setting (Lazarus et al., 2018; Stöver, 2017; UNODC, 2014). In the absence of prevention strategies, HCV treatment as prevention (TasP) has gained interest as a means for reducing incidence of new infections in high prevalence settings, such as prisons. Mathematical modelling suggests that HCV TasP is a viable public health approach to reducing HCV transmission (Martin et al., 2011), including in the prisons (Stone et al., 2017); through treating people living with HCV, the overall prevalence is minimised in order to provide a protective effect against transmission.

The Surveillance and Treatment of Prisoners living with hepatitis C (SToP-C) study is the first real-world trial of HCV TasP in a prison setting (Hajarizadeh et al., 2016). The study has been conducted across four prisons in New South Wales, Australia, and included a surveillance phase to identify HCV prevalence and to record the incidence of transmission. Following the initial surveillance phase, all patients testing HCV RNA positive (meaning current infection) were offered HCV treatment. The surveillance continued throughout the study, to evaluate the impact of treatment on incidence of new infections, both primary and reinfections. The study is supported by a qualitative component to understand the personal, social, and cultural implications of HCV TasP among the prisoner population. Prisoners enrolled in SToP-C were invited to participate in interviews pre- and post-treatment. The data presented here are from the post-treatment interviews, capturing the perspectives of patients relating to HCV risk, treatment (including TasP), and reinfection.

The participants within this qualitative study have been treated for HCV in prison, and a majority have a history of injecting drug use. They belong to a counterpublic, a subordinate group within a larger norm. A public often refers to the group which is most visible, thus "[a] public, in practice, appears as *the* public" (Warner, 2002:51). The notion of counterpublics, on the other hand, asserts that recognition must be given to publics which may be counter to the norm, enabling a voice for population groups which may be marginalised within particular contexts (Warner, 2002). Thus, within prison, people who inject drugs (including those with a history of drug use), are a counterpublic to the larger population – their unique needs different from that of the wider prisoner population.

Race (2009) described the notion of counterpublic health in which the health needs of population groups outside the societal norm are recognised and acknowledged, with equitable consideration for their needs addressed. Prison-based HCV TasP is a strategy, broadly adopted from HIV harm reduction strategies, which prioritises the health of prisoners living with HCV and delivered in a manner that is compliant with correctional conditions. Accordingly, a counterpublic health lens allows for critical examination of the unique health risks and needs, and in the context of this paper, of people who are at risk of HCV re-infection (predominantly through sharing injecting equipment) following HCV treatment in an environment where prevention strategies are limited.

Qualitative interviews with SToP-C patients prior to prison-wide treatment scale-up revealed a number of perceived challenges to the feasibility of HCV TasP within the prison setting. These included ongoing risks of reinfection due to the social role of injecting drug use in prison (Lafferty, Rance, & Treloar, 2018a), limited access to harm reduction measures (Lafferty, Rance, & Treloar, 2018b), and stigma associated with HCV status (Rance, Lafferty, & Treloar, 2018). However, prior to treatment, participants highlighted several perceived benefits to prison-based HCV treatment compared with community-based treatment across both structural and patient levels (e.g., proximity of clinic, fewer competing priorities) (Lafferty et al., 2018). This paper presents patients' perspectives of reinfection following prison-wide treatment scale-up, with all participants having cured their HCV after treatment completion. Specifically, the aim of this paper is to explore perceptions of HCV reinfection following 'cure' among people in prison.

Methods

The SToP-C study has been carried out at four correctional centres in New South Wales (NSW), including two maximum security prisons, one minimum, and one women's (medium-minimum security classification). Recruitment for the qualitative component was undertaken by the study nurses during patient consultation in which preliminary verbal consent was obtained. Participation in the qualitative sub-study was entirely voluntary and refusal to participate had no impact on overall study participation or HCV care. The interviewer (LL) was provided with a list of prisoner identification numbers and first two letters of first and surnames of participants who had provided verbal consent to be interviewed. Participants were then called to the clinic (via officer escort at the maximum security prisons) where they were invited to participate in a semi-structured in-depth interview. One participant declined to attend the clinic (minimum security) when his name was called over the intercom. The consent form was reviewed with all participants prior to obtaining signed consent. Participants were remunerated with AU$10 into their inmate bank account for their time in participating. To ensure participant confidentiality from correctional personnel, interviews were conducted in a closed room in the health clinic (with one interview conducted in a room next to the work centre due to space availability), with only the interviewer and participant present.

Eligibility criteria was slightly varied across the security classifications. Post-treatment interviews were conducted with study enrolees who had completed HCV treatment; interviews were conducted 12 weeks following treatment completion (known as sustained virological response (SVR) at which point 'HCV cure' can be assessed) in the two maximum security prisons and at end of treatment at the two lower security prisons. Maximum security prisoners typically serve lengthier sentences than those in lower security prisons, thus participant retention allowed for later follow up at the maximum-security prisons. Due to the shorter sentence length of women offenders (Australian Bureau of Statistics, 2018), there were only two eligible women who had completed treatment at the women's correctional facility at the time of interviewing. One woman declined to participate (a reason was not provided); with only one woman participating in the qualitative sample. To ensure her anonymity, her transcript has been removed from the analysis and omitted from our findings. It should be noted that her responses were in agreement with the overall responses by participants across the remaining three correctional centres.

Ethics approvals were obtained from the following human research ethics committees: Corrective Services NSW (qualitative sub-study approval on 5 April 2016); Justice Health & Forensic Mental Health Network (G621/13); Aboriginal Health and Medical Research Council of NSW (1253/17); and UNSW Sydney (HC15645).

Pre- and post-treatment interview schedules were similarly designed to elicit prisoners' understanding of HCV transmission risks and prevention opportunities in the prison setting; perceived advantages and disadvantages of HCV treatment in prison; perceptions on the role of treatment *as* prevention; and perceived prisoner and personnel support for HCV treatment in the prison setting. The post-treatment interview schedule also sought to explore changes in injecting culture following prison-wide treatment scale-up and participants' concerns of reinfection

following treatment. Demographic questions regarding age, time served on current sentence, duration since last injection, HCV status and treatment history, and OAT status were also included in both the pre- and post-treatment interview schedules. This paper focuses on participants' concerns of reinfection following HCV cure. Interviews lasted an average of 34 minutes, ranging from 14 minutes to 69 minutes.

Interviews were audio-recorded, transcribed verbatim, proofed for accuracy and de-identified. A coding framework was developed in collaboration among the authors (LL, JR, CT) based on themes within the interview schedule and field notes, with all coding completed by LL. A deductive coding framework was developed from the themes covered in the interview schedule and used for the first round of coding (Braun & Clarke, 2006). Informed by Race's description of counterpublic health (Race, 2009), a second round of inductive coding was undertaken within the reinfection node to tease out elements of counterpublic health as it applied to participants' perceptions and concerns of re-infection. Transcripts were coded using NVivo11 qualitative data analysis software; QSR International Pty Ltd. Version 11, 2015.

Results

A total of 23 male prisoners were included in this sample, including 20 from maximum security and three from minimum security. All participants had completed HCV treatment within the previous six months (with the three lower security classification participants having only completed treatment within the previous few weeks). Participants had a median age of 39 (IQR: 32–44) and had been incarcerated for 4 years (median, IQR: 2.75–10) on their current sentence. It should be noted that a majority of participants (20 out of 23) were recruited from maximum security prisons. The interval since the last reported episode of injecting drug use ranged from the morning of the interview (hours prior) to more than two decades prior. Ten participants reported recent injecting drug use (defined as at least once since commencing HCV treatment as this was a risk factor for reinfection); 10 participants were receiving OAT (nine on methadone, one on buprenorphine). One maximum security participant had become reinfected with HCV since treatment and was undergoing his second course of treatment through the SToP-C study at time of interview.

Pre-treatment interviews included demographic data of preferred drug/s injected among those who reported recent injecting drug use. However, this data was not collected from participants during post-treatment interviews due to participants' concerns of reporting recent drug use to the interviewer early during data collection. Participants spoke softly when asked about recent drug use, with one participant initially remaining silent when asked about the timeframe since his last injection. Following discussion between the interviewer and participants around treatment eligibility in the event of reinfection, participants became more candid in their responses regarding personal risk behaviours. This early observation during data collection resulted in a revised interview schedule in which the interviewer first asked participants about their knowledge of eligibility for retreatment (and clarification provided by the interviewer) before proceeding to topics relating to personal risk factors, such as injecting drug use. It is likely that participants' misunderstandings of retreatment eligibility were residual from the interferon treatment era in which there were a number of restrictions.

Perceived expectations to remain HCV free (internal and external)

Participants reported both personal and perceived external expectations that they not engage in HCV risk practices following cure, thereby ensuring maintenance of their 'cure' status after treatment. This had implications on participants' sense of dignity ("I feel like a fuck head"; Carlos) and internal locus of control (Evon, Golin, Bonner, Grodensky, & Velloza, 2015), specifically, their ability to control the outcome of their long-term HCV status after 'cure'. Expectations to reduce risk practices and maintain 'cure' status, whether conceived to be imposed by health/study personnel or personal expectations created a sense of failure for those who viewed reinfection as inevitable in prison.

> I do what I can now not to get it again, hence the water, Fincol [a bleach alternative], water. [*So that's what the shift [in injecting practice] has been?*] Yes, because I don't want to be one of those people who talks to you again in another 6 months, because it will embarrass me. I would be embarrassed. Like obviously I don't learn, I keep coming to fucking jail, but things like that … like I want what's best for me. If it's a matter of getting a clean cup of water, mate I'll do it and that's just me. [Carlos, Maximum Security, Current IDU, not prescribed OAT]

> [*Do you reckon that … I don't know if these are the right words to use, but should that be the expectation that people stop using after they get treated?*] Yeah. I think people are expected to, but some still do. [*And who are they expected to by?*] Just what they say before the treatment, they say, "I'm going to stop using" and then they do the treatment, but they keep using. [*So it's like a self-expectation, it's not from the SToP-C nurses?*] No. Well probably them too, but mostly themselves as well. [Dante, Maximum Security, Current IDU, prescribed OAT]

Cure is transitory

Counter to expectations to maintain 'cure' status, several participants described HCV cure as only temporary within the prison setting. Dante reinforced the perceived personal onus to maintain his 'cure' status, though he acknowledges the risks of reinfection if he reverts to drug use. Tim's articulation of reinfection following treatment as "a bit of a cycle" whereby infection-treatment-infection further highlights the disjointed efforts of HCV treatment while people who use drugs in prison carry the responsibility of avoiding risk factors (in the absence of preventative supports). This suggests that participants view HCV 'cure' as a temporary health status, rather than as a long-term change in their health identity. From a counterpublic health lens, this assertion of 'cure' as transitory depicts ongoing uncertainty despite 'cure', entailing a scenario of hope that lacks medical guarantee (Rhodes & Lancaster, 2019).

> [*What made you come up and get treated if you thought you might be at risk again?*] The chance that I'm not, there's a chance that I won't use again and I'm clean. [Dante, Maximum Security, Current IDU, prescribed OAT]

> Because I know a lot of people in here get hep C not long after they get rid of it. So it seems to be a bit of a cycle. [Tim, Minimum Security, Non-current IDU, not prescribed OAT]

The language of 'cure'

HCV cure following treatment created an identity shift for some participants, with notions of being 'clean' associated with their cure status. HCV detection in the blood can hold negative connotations for patients' perceptions of self as being either "clean" or "dirty" (Fraser & Treloar, 2006). It should be noted that 'clean' is a word that is often used, disparagingly, within addiction rehabilitation language to describe not having consumed (or engaged with) the addictive substance/behaviour (International Network of People who Use Drugs, 2011). Its use here by participants may indicate a similar denigrating perspective that is imposed upon patients (or self-imposed). As indicated in the dialogue below with Mickey (and earlier in the Results section), several participants reported misconceptions about treatment eligibility should they become reinfected with HCV. Under Australia's universal healthcare (and in accordance with SToP-C study protocol and Justice Health NSW policy), people who become reinfected with HCV are eligible for

re-treatment irrespective of number of previous treatments.

> [*You said you had understood that you were only allowed two times, so were you concerned to do treatment the second time?*] Yeah I was, yeah I really was. I was thinking, "Geez, I really don't want to do it like now, because if I only get another go of it, I would probably want to do it later in my sentence, so I'm clean later on you know. Yeah, like I've got 20 years […], but I've got 13 years on the bottom. I've done 3 years and a bit already, so you know, then I've done the [HCV treatment] now and I'm thinking, "Oh, if I go for another 7 odd years, then do it, I've got like 3 years left to do, I could probably get out clean". That's if I only had two … [*What do you mean, "get out clean"?*] Like you know, get out without hepatitis. [Mickey, Maximum Security, Current IDU, not prescribed OAT, HCV reinfection]

As Andre describes below, having cured his HCV through treatment, he is now confronted with the psychological struggle of wanting to stay "strong" after HCV treatment, but concerned his lived experience of drug dependence may ultimately put him at risk of HCV reinfection, thereby compromising his 'clean' status. Despite national HCV treatment guidelines indicating people who inject drugs should be treated (and monitored for ongoing infection) (ASHM, 2019; Hepatitis C Virus Infection Consensus Statement Working Group, 2018), Andre's self-burden reflects current correctional policies which limit access to models of drug treatment.

> [*And are you at all concerned about reinfection?*] I am, like I know within myself, if I don't stop [injecting], I'll get [HCV] again. Like I don't want to catch it again and I don't want to use again either. I don't care about people in the yard looking down upon us, well maybe my family I worry about looking down on me, so I just hope I stay strong. […] It's really just up to me, if I want to mess up, I'll get it again, you know what I mean. [Andre, Maximum Security, Non-current IDU, prescribed OAT]

HCV treatment is only half the package

There were explicit concerns about the feasibility of self-protection against future risk amid the current policy and structural frameworks with regards to management and treatment options for drug dependence available to incarcerated people. This was articulated through desires for increased access to OAT, with participants describing lack of support to address their HCV risk factors. This created tension for participants who currently injected drugs as they felt caught between two policy priorities: curing HCV, but with no provision for support to protect against reinfection (e.g., restricted access to OAT).

> Yeah who do the [HCV] treatment, like I guess what they say is, "we'll do the treatment, but there's no use really doing the treatment, because we're just going to continue to shoot up" and you know there's no rehabilitation in this jail or in pretty much in any jail. And you want help to get off whatever you're doing, but they won't put you on methadone or they won't put you on bupe or nothing like that. So if I myself was put on methadone or bupe, I wouldn't shoot up anymore, so that would save me from reinfecting myself every time, but they won't help. So you know everyone you say that to goes, "we've got nothing to do with that area" and it's like, "okay cool", so you can't get no help. [Mickey, Maximum Security, Current IDU, not prescribed OAT, HCV reinfection]

> I tried to explain to the nurse too, that if you are going to do the hep C treatment program for people, you've got to try and help people either get on the methadone program or help them get on the bupe program or something like that, because if you don't, they're just going straight back to the yard and they're just using again. […] I know before I get out of jail again there's a chance I'll have hep C again, just because I've asked them a million times for help to get on the methadone program or something you know what I mean to help, […] but if they're not going to help people out, then they're going to keep doing the same thing over and over again aren't they? They've got a habit. [Jack, Maximum Security, Current IDU, not prescribed OAT]

Amid expectations to avoid HCV reinfection, there was a sense of being considered as a failure if patients were to become reinfected following treatment. Some participants expressed an ongoing fear of failure as reinfection was perceived as somewhat inevitable in the absence of primary prevention strategies and therapies to assist with drug dependence whilst incarcerated.

The focus on OAT rather than prison needle syringe programs is in contrast to findings from the pre-treatment interviews whereby participants suggested access to sterile injecting equipment as necessary for the efficacy of HCV treatment as prevention efforts (Lafferty, Rance, & Treloar, 2018b). As Jack discusses below, there had been plans for a pilot NSP at the correctional facility in Canberra, Australian Capital Territory, which was described as influencing participant responses at the time of pre- and post-treatment data collection. The pilot was cancelled before it commenced, and this was discussed as diminishing hopes among SToP-C participants for improving access to better preventative strategies. This shift in thinking and participants' advocacy for primary prevention reflects the ways in which health policies can be so influential over the health needs of counterpublics.

> Back then right, it had come through that Canberra jail had this needle exchange thing and everyone's thinking "we can get a needle exchange here and we can get a new needle" and to have a new needle in jail, you know what I mean, it's a big thing. […] Everyone was thinking "at least if we can get our own needles that will help", but that was never going to happen, so that's why I think you would have been hearing that. [*So is it because there was a flicker of hope? … And now, there's no hope?*] No chance of that ever happening, that was just a pipe dream for a lot of them. They all thought, "yeah, if we tell the hep C people that maybe if they give us needles we'll be right and we can do it like Canberra and it will be all good", but that was never going to happen, never. [Jack, Maximum Security, Current IDU, not prescribed OAT]

Prevalence is risk

Reinfection was still a concern among participants without recent injecting drug use, through risk of exposure during blood-to-blood contact via fighting. Risks associated with fighting were viewed similarly to those associated with injecting drug use while in custody – fighting was seen as inevitable and without means to adequately protect oneself against HCV transmission. However, as noted by Cole, prison-wide HCV treatment scale-up provided assurance that transmission risk (associated with fighting) was greatly reduced.

> I mean besides the fighting, there's really no risk at all. [Eddie, Maximum Security, Non-current IDU, not prescribed OAT]

> [*Are you concerned about getting reinfected?*] Look, yes and … in a way sort of yes, because you can through a fight. […] If someone jumps at you and you don't have enough to cover your hands with and in case he gets his teeth in you and you are bleeding and he bleeds, you can still get it, so you know you can't just choose and say, "okay mate we'll fight at 2 o'clock" you get jumped on, so you got to you know … [Matt, Maximum Security, Non-current IDU, not prescribed OAT]

> Like I said, when I had a fight I was a bit concerned. But with the people I have in my unit now, I know everyone's been treated, so the likelihood of getting reinfected through a fight or something, is very low. [Cole, Maximum Security, Non-current IDU, OAT status unknown]

Discussion

These findings draw on the first-hand accounts of people at high (i.e., people who inject drugs in prison) and low risk (i.e., unintended blood-to-blood contact such as through fighting) of HCV reinfection following treatment in the prison setting. Participants reported a range of concerns relating to HCV cure, amid expectations that 'cure' is maintained following treatment despite ongoing risks of reinfection through the limited ability to prevent re-exposure (e.g., restricted access to OAT and sterile injecting equipment; and other blood-to-blood contacts such as fights). In the current environment, HCV cure was viewed as temporary, with HCV treatment only addressing one aspect of health care while ignoring drug dependence as an ongoing risk factor for re-exposure. Taken together, these concerns highlighted patient fears of being "embarrassed" (Carlos) should they be unable to maintain their 'cure' status, with compromised identity status of no longer being "clean" if reinfected (Mickey and Pedro). This study provides important insights into the challenges surrounding HCV reinfection prevention following successful treatment in the prison setting, which is important for guiding both clinical practice and policy.

A counterpublic health lens allows examination of participants' perceptions that reinfection is considered as the patient's failure to maintain 'cure'. This burden of 'failure' among participants, should they become reinfected, may stem from previous situations in which they were made aware that patient non-compliance was considered by clinicians to be a legitimate reason to delay or refuse care (Bruggmann & Litwin, 2013). While there are reports of similar concerns about stigma attached to reinfection in the community (Richmond et al., 2018), a key motivation to undertake DAA treatment is to rid oneself of an identity (HCV status) largely bound up with injecting drug use (Madden, Hopwood, Neale, & Treloar, 2018). This ability to clear an identity was not present among prisoner participants as this identity change was perceived to be fleeting or fragile. Prisoners who have successfully completed treatment need to be assured that they remain eligible for ongoing care, including testing and re-treatment if required, and that such care is in no way contingent upon behavioural change, including expectations of abstinence. Prison health promotion should ensure that this message of non-judgemental access to ongoing care and (re)treatment is made explicit, both for those who have completed HCV treatment, and for those contemplating treatment. In the prison setting, it was widely believed by participants that HCV cure was only a temporary health status with future infection inevitable among people who continue to inject drugs whilst incarcerated, as well as for others who may be at risk of HCV exposure through other forms of blood-to-blood contact (e.g. fighting). Community-based research has evidenced participants' strategies and goals to avoid HCV reinfection following cure among those with ongoing injecting drug use (Williams et al., 2019). Unlike the prison setting where access to sterile injecting equipment is unavailable, people in the community have access to key harm reduction strategies (including OAT and sterile injecting equipment) as the means for reducing risk of future HCV exposure. Duff and Moore (2015:53) explain that "public texts serve to mediate, if not define, the identities, values and worldviews of those assembled in their address". However, public health policies written to serve the prisoner population often overlook the ongoing health risks faced by prisoners who inject drugs in prison (Kolind & Duke, 2016; Lafferty, Wild, Rance, & Treloar, 2018). Participants sought increased access to OAT as a means of reducing risk of HCV transmission following cure. The ongoing restricted access to prevention strategies (OAT and prison needle syringe programs) contradicts the Nelson Mandela Rules which advocate for equitable access to care for incarcerated people as that which is available in the community, "including for drug dependence" (UNODC, 2015: Rule 24.2).

The language of 'cure' was raised by participants as impacting on their identity, as participants hoped to retain their "clean" status following HCV 'cure'. Fraser and Treloar (2006:108) have argued that it is "important to disrupt the binary logic" of language, such as "clean/contaminated". Likewise, the International Network of People who Use Drugs (INPUD) (and other peer-based drug user organisations) have confronted use of language which implies people who use drugs are either "clean" or "dirty" (International Network of People who Use Drugs, 2011). Taken from a counterpublic health perspective, our findings depict the negative and stigmatising ways in which language purports expectations of behaviour. Participants described perceptions of HCV clearance as being "clean", no longer tainted with a highly stigmatised virus (Henderson, Madden, & Kelsall, 2017; Rance et al., 2018). However, participants challenged the absence of supportive structures to maintain this new identity, ultimately compromising the longevity of their "clean" status as HCV reinfection was viewed as inevitable within the prison setting.

Participants perceived that their HCV treatment was prioritised in isolation of their drug dependence, in which their drug use is exogenously connected to their HCV risk/exposure. This is consistent with the social health literature which has consistently demonstrated the disconnection reported between people's lived experience of HCV (including its treatment) and biomedical concerns focused solely on the physical body (Krug, 1995; Rance, Treloar, Fraser, Bryant, & Rhodes, 2017; Sutton & Treloar, 2007). Whole person care is potentially overlooked in HCV treatment approaches within prisons in which the illness, diagnosis, and treatment, are considered in isolation of the experiences of the person receiving the care (Peabody, 2015). This has the direct consequence of treating the disease while overlooking the overall health needs of the patient, ultimately producing a compromised character of the patient as non-compliant. In the community, patients who have received HCV treatment have articulated identity challenges associated with clearing the virus as they are no longer living with a highly stigmatised chronic condition (Henderson et al., 2017). The research presented in this paper is the first, to our knowledge, to highlight the unique identity challenges of HCV treatment in prison in which 'cure' may quickly be followed by reinfection. Health messaging should seek to clarify that HCV treatment does not provide protection against HCV reinfection, but that future treatment is available in the event of future HCV exposure.

Participants believed that current policy frameworks resulted in HCV treatment as being only half of the HCV healthcare package. It has been acknowledged that healthcare interventions may inadvertently result in "a matter of individual dysfunction rather than collective concern" (Race, 2009:129). With this in mind, HCV TasP in prison should actively set out to communicate to patients (and the wider prisoner population) that HCV treatment for infection or reinfection is not only an individual responsibility, but rather a public health responsibility of prison administrators and health care providers. As Mickey described, current healthcare policies within the prison setting are siloed as he sought to find the appropriate support for drug treatment while addressing his HCV ("we've got nothing to do with that area"). While TasP efforts recognise the collectivity of HCV as a public health issue, the instability of 'cure' amid possible re-exposure maintains individual notions of failure rather than acknowledging the broader systemic issues of restricted access to harm reduction strategies in the prison setting. While TasP may be value-neutral through its focus on HCV treatment as separate to modes of transmission, there remains the ongoing concern of HCV exposure for those who continue to be at risk following 'cure'.

The combination of universal healthcare in Australia along with the high efficacy and low side effects of DAAs has resulted in HCV treatment health messaging in New South Wales that emphasises the accessibility of treatment with cure amid HCV elimination efforts - "Cure is easy" (Hepatitis NSW, 2018) and cure is "easy and effective" (NSW Health, 2018). These messages are targeted at the broader population, those in the community with access to the necessary means to protect against (or reduce) future HCV exposure after cure. Such messaging fails to address the needs of members of counterpublics, such as

people in prison, who may be at ongoing risk of reinfection due to drug user and health policies beyond their control. In a review of health promotion materials for hepatitis C and prevention, these same underlying themes of individual responsibility for harm minimisation without recognition of space or environment prevailed (Winter, Fraser, Booker, & Treloar, 2013). With risk of reinfection in the prison environment where 'cure' is restricted to treatment in the absence of prevention, the meaning of 'cure' becomes disjointed and only partial: "we can cure you...for now", placing responsibility on the patient to ensure the cure is permanent rather than temporary. Thus, internal and external locus of control of people treated for HCV (i.e., personal and outward responsibility for maintaining 'cure') (Evon et al., 2015), is disjointed for members of this counterpublic, as policies fail to recognise ongoing risk factors for future HCV transmission. Within a counterpublic health perspective, the public health problem of HCV is targeted in isolation of, or without the full concerns of, the person living with the virus. Refining messages about HCV treatment among people in prison will address some of the concerns about reinfection raised in this study. Ensuring patients in prison understand that their future treatment eligibility is separate from their involvement in ongoing risk-exposure practices, including drug use, may aid in reducing patient (and provider) expectation that 'cure' is maintained. Health care provider education would likely also be beneficial to ensure health messaging does not include unintended expectations for maintaining 'cure', but rather creates a patient-provider relationship that is both patient-centred and free of judgement or recrimination.

There are limitations to this study. Participants in this qualitative study were recruited from a larger epidemiological study exploring hepatitis C prevalence and transmission in the prison setting following HCV treatment scale-up. While the SToP-C study sought to enrol the entire prisoner population across the four correctional centres where the research was being undertaken, a minority declined participation which included HCV screening. Amongst other possible reasons, it is possible that some prisoners did not come forward for screening due to risk of ongoing or future reinfection (Levy & Larney, 2015). Thus, it is possible that the concerns identified in this paper of people in prison regarding HCV transmission and risk of reinfection following cure may, or may not, be experienced by other prisoners. While there was strong support for increased access to OAT among participants, particularly among those with recent injecting drug use, it is important to recognise that prescribed OAT is only of therapeutic benefit for those with opioid dependence (rather than other drugs such as methamphetamine). Participants were not asked about their preferred drug choice so the benefits of OAT are solely the perception of participants and we are unable to speculate about their actual efficacy among this cohort. However, drug consumption is restricted by market supply, whereby people in prison may resort to consuming drugs other than their preferred choice depending on availability (Swann & James, 1998). This suggests that although some participants may not *prefer* opioids to other drugs, market supply limitations could impact on their drug consumption choices.

While our sample includes only male participants, we know from the literature that women in the community who inject drugs are exposed to patterns of injecting that put them at considerably greater risk of contracting HCV than their male counterparts. Women with a history of injecting drug use are more likely to have a male sexual partner who also injects drugs (Choi, Cheung, & Chen, 2006); to be introduced to injecting by a male sexual partner (Bryant, Brener, Hull, & Treloar, 2010); to be injected by a male sexual partner (Maher & Hudson, 2007); and to go second on the needle when sharing with a male sexual partner (Grund et al., 1996). Experiences of incarceration are also different for women, with women more likely to receive shorter sentences and more likely to be imprisoned for drug-related offenses than their male counterparts (Australian Bureau of Statistics, 2018). Additionally, women in prison often have higher HCV prevalence than men (Poulin, Courtemanche, Serhir, & Alary, 2018; Vescio et al., 2008), underscoring legitimate concerns of re-exposure following treatment. Consequently, these findings may not be transferable to women engaging in HCV care and treatment in the prison setting. HCV care engagement with incarcerated men and women should seek to prioritise the patient and treat the virus in a manner which is patient-centred while recognising ongoing policy failures.

Conclusion

Using a counterpublic health lens to interpret the data has shown that critical issues exist within the current siloed HCV treatment efforts within the prison setting. Treating HCV uses a biomedical intervention to rid the person of the virus, to 'cure' their HCV. However, other necessary health promotion interventions remain. Treating HCV does not treat the whole person. Applying a biomedical intervention to a disease that is often the result of drug use fails to acknowledge or 'treat' the holistic components of the infection. Curing HCV while simultaneously ignoring ongoing risk factors for reinfection (e.g., injecting drug use) compartmentalises health in ways which may further damage their overall wellbeing. To be clear, we are not arguing that HCV should only be treated alongside therapy for drug use, but that drug use must also be recognised as a person's ongoing health needs whereby access to harm reduction measures should be made available to the patient.

As HCV treatment is now widely accessible with high efficacy and minimal side-effects, we must ensure that unintended barriers to HCV care and treatment don't arise for people requiring treatment for future HCV infection after cure, particularly those in the prison setting where harm prevention strategies are limited or absent. There needs to be caution with TasP efforts in the prison environment to protect patients against blame of failure. The stigma of HCV within prison has subsided since the onset of DAAs (Rance et al., 2018), but will the treatment of HCV with these same drugs establish new stigmas for those who are deemed to 'fail' cure with this 'simple, yet highly-effective' treatment (Bryant, Rance, Hull, Mao, & Treloar, 2019)?

Declaration of Competing Interest

LL has no declarations of interest to report.

JR has no declarations of interest to report.

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CRediT authorship contribution statement

Lise Lafferty: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing - original draft, Writing - review & editing. **Jake Rance:** Conceptualization, Methodology, Writing - review & editing. **Jason Grebely:** Funding acquisition, Writing - review & editing. **Gregory J Dore:** Funding acquisition, Writing - review & editing. **Andrew R Lloyd:** Funding acquisition, Writing - review & editing. **Carla Treloar:** Conceptualization, Funding acquisition, Methodology, Writing - review & editing.

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Supplementary materials

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