

# Expert stakeholder perspectives on the acceptability of treatment-as-prevention in prison: a qualitative substudy of the 'Surveillance and Treatment of Prisoners with Hepatitis C' project (SToP-C)

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## ABSTRACT

**Background and aims** Mathematical modelling has demonstrated the theoretical feasibility of HCV treatment-as-prevention strategies in custodial settings, yet limited empirical data exists. The Australian 'Surveillance and Treatment of Prisoners with Hepatitis C' study is the world's first trial of hepatitis C virus (HCV) treatment-as-prevention in prison. This study aimed to analyse how expert stakeholders involved in the Australian HCV response assessed the acceptability of HCV treatment-as-prevention in prison using interview data from the SToP-C qualitative substudy. **Design and setting** Qualitative analysis using semi-structured interviews in Australia. **Participants** Nineteen key HCV experts. **Measurements** Drawing upon Sekhon's theoretical framework of acceptability, data were organized thematically under four component constructs of acceptability: affective attitude; ethicality; opportunity costs; and perceived effectiveness. **Findings** Most differences in participant assessments of acceptability were a matter of relative emphasis and prioritization rather than absolute polarity. Nonetheless, a small minority of participants was overtly critical of the approach. Arguing against the focus on treatment, they instead advocated for prevention-as-prevention, including the improvement and expansion of existing harm reduction measures. **Conclusions** Qualitative analysis of expert stakeholder assessments of the acceptability of hepatitis C virus treatment-as-prevention in Australian prisons found no opposition to the universal rollout of direct-acting anti-virals, but most voiced concern regarding the lack of effective primary prevention in Australian prisons.

**Keywords** Acceptability, Australia, hepatitis C treatment, implementation trial, prison, qualitative, Sekhon's treatment-as-prevention.

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## INTRODUCTION

Due principally to the criminalization and imprisonment of people who use drugs and the role of injecting drug use as a primary risk factor in incident cases, the global burden of the hepatitis C virus (HCV) is disproportionately borne by those in prison [1,2]. Nonetheless, new interferon-free therapies are dramatically re-shaping the treatment landscape and prisons are set to play a critical role in elimination efforts [3,4]. Described as 'one of the great advances in clinical medicine in recent decades' [5], new-generation direct-acting anti-virals (DAAs) offer simpler, shorter-duration, pangenotypic treatments, with fewer

side effects and cure rates of almost 100% [6–8]. In Australia, as elsewhere, the curative potential of new therapies has inspired a dramatic reconceptualization in the public health approach, within both community and custodial settings: from one of prevention and chronic disease management to one of population-level treatment-as-prevention and viral elimination [9]. When the Australian Government announced its commitment to fund universal access to DAAs in December 2015, specific provisions were included to ensure the prioritization of care and treatment for those in prison [5]. The following year, when Australia signed up to the ambitious targets set by the World Health Organization for the global

elimination of HCV as a public health threat by 2030 [10], prisons were once again included as a priority setting [11].

While the global prevalence of HCV among the general population is estimated to be 1.0%, this rises to approximately 15.1% among people in prison [2]. In the general Australian prison population, the antibody prevalence of approximately 22% more than doubles among those who report injecting drug use [12], with ongoing transmission rates among the latter of between 10 and 15% per annum [13]. While rates of injecting are reported to decrease following imprisonment [14] the frequency of sharing injecting equipment increases, thereby significantly raising the per-episode risk of transmission [15]: a risk exacerbated in turn by the limited provision of prison-based harm reduction, both in Australia and world-wide. The provision of opioid agonist therapy (OAT) is patchy and prison needle syringe programmes (PNSP) are scarce. This is despite strong evidence for the effectiveness of both measures in the prevention of HCV [16,17]. In Australia, only two blood-borne virus prevention measures are (at best) available to prisoners: Fincol, a bleach alternative promulgated as a means of cleaning used injecting equipment, and OAT [18]. Neither measure has been associated with a significant reduction in HCV incidence in Australian prisons, with concerns raised regarding the efficacy and practicality of the former and adequate coverage of the latter [19,20].

Under these circumstances, the advent of new HCV treatments (both curative and circumscribed in duration) has prompted a marked interest in treatment-as-prevention strategies within custodial settings. The combination of high prevalence in a tightly regulated environment with limited drug treatment and harm reduction measures make prisons an opportune setting for a real-world trial [21,22]. However, despite evidence of treatment-as-prevention's effectiveness in reducing HIV incidence [23] and its HCV-related feasibility in prison settings demonstrated in mathematical modelling work [1,24,25], limited HCV-related empirical data exist. The Australian 'Surveillance and Treatment of Prisoners with Hepatitis C' (SToP-C) project is the world's first trial of HCV treatment-as-prevention in prison. Conducted over 5 years, from 2014 to 2019, among four public prisons in New South Wales (NSW), its primary objective has been to demonstrate the effectiveness of the rapid scale-up of testing and DAA treatment in reducing hepatitis C incidence (i.e. treatment-as-prevention). A qualitative substudy was included to assess the acceptability of the SToP-C intervention among key stakeholders, both within the prisons (prisoners, prison officers and prison health staff) and in the community (HCV experts). Adapting Sekhon's 'theoretical framework of acceptability' [26], the aim of this paper is to analyse the latter's assessments of the acceptability of HCV treatment-as-prevention as a

potential strategy for scale-up and implementation within the prison system in NSW, other Australian jurisdictions and internationally.

### **Sekhon's notion of acceptability**

Tacitly understood as the degree of support for an intervention among stakeholders [27,28], the concept of acceptability has become a key consideration in the design, evaluation and implementation of health-care interventions [26]. In a recent review of the literature, Sekhon and colleagues [26] analysed the concept in an attempt to arrive at a more precise definition of acceptability. Acceptability, they concluded, is a 'multi-faceted construct that reflects the extent to which people delivering or receiving a healthcare intervention consider it to be appropriate, based on anticipated or experienced cognitive and emotional responses to the intervention' [26]. According to this framework, acceptability comprises seven component constructs: affective attitude; burden; ethicality; intervention coherence; opportunity costs; perceived effectiveness; and self-efficacy. These components operate along a temporal continuum, from prospective to concurrent to retrospective. In this paper, we adapt Sekhon's framework of acceptability to include key stakeholders interviewed concurrently during the trial but not directly involved in either delivering or receiving the intervention.

### **METHODS**

Established in 2014, the SToP-C trial was implemented sequentially across four public prisons in NSW, Australia: one minimum/medium security women's facility and three men's facilities (one minimum and two maximum). Following the initial surveillance phase, all patients testing HCV RNA-positive (current infection) were offered HCV treatment. Ongoing surveillance evaluated the impact of treatment on new incidents, both primary and re-infection. Although the logic of implementing DAA treatment-as-prevention in a setting and population of high prevalence was well grounded, a qualitative substudy was important to assess the acceptability of the intervention among key participating groups. Interviews with prisoners were conducted both before and after treatment [20,29,30]; the remaining stakeholders were interviewed once during the latter stages of the trial. This paper focuses upon interviews conducted with key HCV experts recruited Australia-wide.

Recruitment followed a purposive or 'expert' sampling method [31]. In consultation with the SToP-C project steering committee, the study team compiled a sample of candidates based on professional expertise. Since the first national hepatitis C strategy in 1999, the Australian response to HCV has been built upon a model of partnership between government, community-based organizations,

researchers, health professionals and people living with HCV [32]. Its success depends upon clear leadership roles and accountability among all involved. In defining 'expertise', we followed the model of Australia's response: of partnership and collaboration between government and the peak organizations representing affected communities, health professionals and researchers. Candidates were selected on the basis of their leadership or seniority within key partnership organizations. This approach is consistent with other recent qualitative studies among professional/expert stakeholders in the Australian HIV and sexual health fields [33–35]. These studies comprised almost identical sample sizes to our own, similarly reflecting the modest depth of local pools of expertise.

Twenty-one candidates were invited by e-mail to participate; two candidates declined to respond. Financial incentives or compensation were not offered. During 2018, 19 interviews were conducted either face-to-face or by telephone, determined by participant preference and geographic location. Interviews were semi-structured, lasting between 30 and 90 minutes; all were completed. The interview schedule ranged from questions regarding the general management of HCV in custodial settings to those concerning SToP-C specifically. The former covered topics such as the current state of HCV prevention measures in prison, participants' knowledge of DAAs and the advantages afforded by in-prison treatment. The latter included questions concerning the potential role of treatment in prevention, barriers and facilitators to treatment scale-up, and the policy or advocacy implications of the SToP-C trial.

While several participants reported some involvement in SToP-C in an advisory or promotional capacity, all participants noted prior knowledge of the study, either through the regular distribution of SToP-C newsletters, attendance at SToP-C conference presentations, discussions within professional networks and/or with study personnel in the SToP-C prisons. Importantly, while SToP-C was used as a concrete example of treatment-as-prevention in prison, participants were also invited to reflect upon the acceptability of the concept within the context of the Australian prison system more broadly. This meant that all participants could contribute, regardless of their level of knowledge about the intervention itself, ensuring a diversity of perspectives. Consequently, the terms 'SToP-C' (or 'the intervention') and 'treatment-as-prevention' can, to some extent, be understood as interchangeable.

All participants provided either written or verbal consent prior to interview. Interviews were digitally recorded, professionally transcribed, checked for accuracy and de-identified. Transcripts were read closely by the first author (J.R.), and in discussion with the study team a thematic coding framework was constructed using a hybrid inductive and deductive approach [36]. Inductive

themes were drawn from the interview data; deductive themes were constructed via a synthesis of Milat's [27] population-health 'implementation guide' and Sekhon's [26] acceptability framework. Applying this framework, the first author coded interview material using data management software, NVivo 11 (2015). Data for this paper were drawn from the acceptability coding file. Noting that our participants were not directly involved in the intervention (as either deliverers or recipients), we have organized our results using those components of Sekhon's framework germane to the assessment of expert stakeholders, while excluding those necessitating direct involvement ('self-efficacy', for example).

The relatively small size of professionals working in the HCV field posed critical challenges for ensuring participant anonymity and confidentiality. Following Lancaster [37] on elite interviewing, particular care has been taken to de-identify and anonymize transcripts and to remove all demographic information from participant attributions. Consequently, participants are described simply as P1, P2 and so forth. Ethics approval was obtained from the following committees: Justice Health and Forensic Mental Health Network (G621/13); Corrective Services NSW (qualitative substudy approval on 5 April 2016); and Aboriginal Health and Medical Research Council of NSW (1253/17) and UNSW Sydney (HC15645).

## RESULTS

Participants included eight women and 11 men, ranging in age from 28 to 72 years and with relevant professional experience from 5 to 32 years (an average of more than 19 years). While the majority of participants were based in NSW ( $n = 13$ ), Australia's most populous state and the location of the four SToP-C prisons, a number were based in other states and territories ( $n = 6$ ). Seven participants were employed in community-based organizations, including those advocating for people affected by hepatitis C, people who use illicit drugs, and people who are or have been incarcerated. The remaining 12 participants were employed throughout a range of state health and prison health departments, research institutes and clinical settings. The inclusion of five CEOs, six Directors, one Deputy Director, three Professors/Clinical Program Heads, two Senior Policy Analysts, one Senior Project Officer and one Program Coordinator, underscored the degree of expertise and seniority within the sample.

**Affective attitude:** how an individual feels about the intervention

Expressions of support for SToP-C were widespread and enthusiastic: 'absolutely no reservations... a really good, public healthcare initiative' (P7); 'just a fantastic opportunity. And it's so simple!' (P9). For some, endorsement of the intervention reflected a broader commitment

to the ‘unique’ public health opportunities afforded by new-generation treatments in an era of universal access. For others, positive responses to the intervention emphasized the potential of DAA therapy as a form of pharmaceutical prevention:

[I]t’s a rare opportunity in public health to use pharmacotherapy as prevention [...]. It presents a really unique opportunity in public health. I can’t really see any downsides. I think it’s a winning formula for everyone, and that’s rare in public health (P13).

[I]t’s my view that the SToP-C study is an excellent initiative. It’s an approach which tests the theory [...]. It’s also using treatment-as-prevention of liver disease into the years ahead. So, I think, from a theoretical point of view it is to be commended (P8).

In some accounts, support for the intervention emphasized the setting itself, noting not only the benefits for individual prisoners, but recognizing the prison itself as an accessible health environment for an otherwise underserved, marginalized demographic. Prison was seen as a critical access point for HCV scale-up if Australia was to meet its elimination targets, not only in custodial settings but in the broader community:

[I]t’s a key setting that we are targeting to achieve elimination... And we know that we have got the most vulnerable population in those settings as well (P15).

I think we’ve probably realized that prison is... the ideal setting to treat high numbers of patients [...]. [T]his is absolutely where the patients of concern are (P1).

Although accounts supportive of the intervention were widespread, they were by no means unanimous. Some were flatly critical: ‘I think prevention-as-prevention would be the best. And a hell of a lot cheaper’ (P19); ‘in terms of elimination, prevention is still like the key’ (P17). Other accounts articulated a more pragmatic response to the intervention, acknowledging that while ‘there’s no one single solution’ treatment-as-prevention was ‘a reasonable one’ (P10); or drawing an analogy with pre-exposure prophylaxis (PrEP) and HIV to argue that we can ‘continue to enhance existing prevention efforts concurrently with treatment-as-prevention’ (P16). Here, a form of

public-health pragmatism—of collective good via individual benefit—was evident:

[T]he thing that I think’s really important is the individuals who are receiving this treatment are generally gaining benefit and I can’t see any sort of significant harms associated with the intervention [...]. We just need to provide as many people as possible with this cure and then we’ll get treatment-as-prevention benefit (P12).

Ethicality: the extent to which the intervention has a good fit with an individual’s value system

In some accounts, concerns regarding a treatment-as-prevention approach were couched in ethical terms. Here, criticism of the SToP-C intervention was caught up in a broader critique of the elimination agenda, with its (perceived) narrow focus on viral cure at the expense of other priorities:

Yes, treatment is great but it’s not gonna stop you getting hep C tomorrow [...]. [T]here’s an ethical issue with being so obsessed with eliminating hep C or getting rid of hep C in these populations that have got five or six other priorities that are actually really ruining their lives today (P2).

I do have a philosophical sort of upset... treatment-as-prevention is getting a lot of attention and a lot of money which maybe could be directed to better things if prevention-as-prevention were actually up there as well (P19).

Other concerns regarding the ethical acceptability of the intervention focused upon the absence of primary prevention measures in Australian prisons. Indeed, even among accounts generally supportive of the intervention, the absence of PNSP—‘the gold standard’ of prevention (P1)]—was a consistent concern.

[T]o have [treatment] as the stand-alone role is wrong [...]. [Prisoners] don’t have the means to prevent themselves from reinfection once they have cured their hep C through the DAA-treatment. So, you have only got half the picture (P8).

As in the previous section, some accounts adopted a broadly pragmatic response to the question of ethicality.



Here once again, treatment-as-prevention as a concept is somewhat downplayed, re-framed instead as an almost incidental consequence of rising individual treatment numbers:

Without actually conceptualizing [SToP-C] really as treatment-as-prevention [...] it's getting more mainstream to just get treatment. And, I guess a sort of a quiet follow-on from that is that that might reduce prevalence and hence reduce transmission (P18).

However, in the following account, the question of ethicality is addressed explicitly through the frame of a 'public-health pragmatism':

I would like to think that you can provide a sort of public-health pragmatism around this and say, 'Look, hep C is a big problem in the prison [...]. Let's evaluate this as a potential solution', and do it in an ethical way through an ethical framework; involve the right people and do it in a scientific sort of sense where you have no preconceived ideas about whether it's gonna be successful or not and just say: 'Well, this is a question really worth addressing' (P12).

Interestingly, in the same account, SToP-C's implementation of treatment-as-prevention is re-framed in light of both ethical and pragmatic concerns. Treatment-as-prevention becomes a strategy of treatment for all rather than one targeting only those at risk of onward transmission: 'If it [SToP-C] was just treatment-as-prevention then you'd look at people... that were not at risk of transmitting the virus, and you would put them to the side. We have not done that...' (P12).

Opportunity costs: the extent to which benefits, profits or values must be given up to engage in the intervention

Despite one account suggesting there were no opportunity costs to a treatment-as-prevention approach—'I really can't see that there are competing interests here' (P13)—a number of other accounts noted concerns, particularly regarding the politics of PNSP advocacy. Referencing the long-standing history of Australian efforts to introduce NSP into prisons, conclusions concerning the future of such advocacy were mixed:

So, what we are doing here is really playing into the political acceptability of not providing NSPs in prisons. By saying we can achieve [treatment-as-prevention] without these you're [...] endorsing that it's okay not to

have NSPs. And that's a little bit dangerous, I think (P19).

If it was successful, does that mean that the momentum for needle exchange in the prison would be lost? No! [...] I still think there's an absolute need for the provision of clean injecting equipment (P12).

Other arguments regarding the advocacy and policy opportunity costs of the SToP-C intervention; that is, treatment-as-prevention, hinted at another broad, long-standing debate within the HCV (and HIV) field: the role of primary prevention versus the increasing 'medicalization' of the public health response:

[T]he real prevention stuff gets sidelined because it's like we have this big, shiny, medical solution. We have all these people pouring all this energy into SToP-C... they're the very people that have given up on needle and syringe programs in prisons (P17).

[I]t feels a little bit like a second-best option [...]. Treatment-as-prevention seems to be an incredibly expensive and resource-heavy way of going about something that could probably be a bit simpler if they just actually implemented proper prevention strategies in prisons (P2).

Once again, a form of public health pragmatism informed some accounts. Here, acknowledgement of the absence of primary prevention and the risk of re-infection was balanced against—and ultimately trumped by—the clinical ease and policy framework surrounding retreatment:

[E]ven though it's not optimum that we don't have the harm reduction access that we do in the community, re-infection is easy to retreat and there is access to retreatment for re-infection (P12).

As much as everyone would like needle and syringe programs in Australian prisons, that's just not gonna happen anytime soon. But... you can eradicate the virus from the prison just by treating everyone (P3).

Perceived effectiveness: the extent to which the intervention is perceived as likely to achieve its purpose

In quantitative terms, the ‘success’ of SToP-C will ultimately be measured by a reduction in transmissions in HCV incidence rates. The question of the intervention’s ‘perceived effectiveness’ was, for many participants, necessarily contingent upon related speculation as to the degree of impact treatment-as-prevention would have in situations of limited primary prevention:

The prison is, in my opinion, the key priority to achieving elimination more broadly across the state and in the community [...]. [But] can we achieve elimination using a treatment-as-prevention approach alone or do we require access to other prevention tools? (P11).

The perceived effectiveness of a treatment-as-prevention approach was, in one account, further compromised by the permeable boundaries and transient populations of contemporary prisons: ‘I don’t really see prison as a closed system. So, in that context I don’t know if it’s even really feasible to do treatment-as-prevention’ (P2). Several participant accounts proposed that the limited nature of prison prevention measures could have a slowing effect on elimination efforts:

So I suppose the only query that I would have around SToP-C would be demonstrating whether or not testing and treatment models alone are gonna be sufficient to achieve micro-elimination and what sort of delays we are going to be facing in terms of achieving micro-elimination in the prison setting if that model is not partnered with other prevention tools (P11).

Not all participant accounts, however, perceived the absence of primary prevention measures as the principal impediment to the intervention’s effectiveness. Here, other concerns were alluded to:

SToP-C, I predict, will not be as successful in showing the overall, original research intent of hep C treatment-as-prevention of transmission [...]. There are so many little barriers which have been discovered along the way (P8).

Finally, in light of highly curative DAAs, there was the occasional expression of unbridled optimism regarding the anticipated effectiveness of treatment-as-prevention, irrespective of other concerns:

There are clear, public-health benefits with treatment-as-prevention [...]. It’s like treating a strep sore throat. You’re given 5 to 10 days of penicillin and it’s gone (P3).

## DISCUSSION

Increasingly, qualitative research is being recognized as ‘crucial’ [28] within evaluations of health-care interventions. Assessing the appropriateness and acceptability of scale-up plans and trials among key stakeholders is critical to identifying potential barriers and enablers prior to rollout. Drawing upon interviews with key professional stakeholders, our aim has been to analyse their assessments of HCV treatment-as-prevention in prison. Despite modelling demonstrating the theoretical possibility of treatment-as-prevention [1,24,25], SToP-C is the first study to date, to our knowledge, to examine whether this is achievable in a real-world setting. While the finalized quantitative results of the SToP-C study are yet to be released, our qualitative study offers valuable, standalone insights for those attempting to achieve population-health effects in treatment-as-prevention programmes implemented outside trial conditions.

Although based on an Australian study, our findings have theoretical generalizability beyond the immediacy of the study setting [38], providing a useful framework for future HCV treatment-as-prevention efforts in prisons elsewhere. While the stakeholders in each case will necessarily be defined by local circumstances, our method of identifying and recruiting stakeholders is replicable. With injecting drug use now acknowledged as a ‘normative characteristic’ [16] of incarceration world-wide, our findings have direct implications not only for people who inject drugs in prison, but also for the broader community. Reducing HCV prevalence among prisoners inevitably reduces the risk of community transmission post-release. Our work also contributes to the nascent literature regarding the concept of ‘acceptability’ in relation to health-care interventions.

Although by no means unanimous, there was widespread, in-principle support for HCV treatment as a form of prevention in prison. Most welcomed treatment scale-up as an important opportunity, not only for individual prisoners but for an otherwise disadvantaged, underserved cohort. Moreover, the custodial setting was also considered strategically important: prisons were where ‘patients of concern’ were located and hence critical to elimination efforts more broadly. Participant accounts were often highly nuanced, with assessments of acceptability carefully contextualized in relation to the availability or desirability of other forms of in-prison HCV prevention.

Evident even among enthusiastic support for SToP-C was an acknowledgement that ‘no one single solution’ exists and that prevention efforts also need to be ‘enhanced concurrently’ alongside treatment scale-up. Such ‘public health pragmatism’ characterized a number of responses, including suggestions that rather than becoming preoccupied with treatment-as-prevention as an abstraction, the end goal of a reduction in incident rates could result from simply focusing upon providing and promoting universal treatment access in prison.

Qualitative methods are especially helpful when applied to new and under-developed areas of research [39], such as HCV treatment-as-prevention in prison. One of the strengths of Sekhon’s [26] framework is its capacity to identify and accommodate differences in stakeholder assessments of acceptability, for alongside the widespread support for SToP-C, there was also a small minority of participants who reported ‘ethical’ or ‘philosophical’ objections to SToP-C’s treatment-as-prevention approach. While broadly supportive of prisoners’ universal access to new DAAs, these critics opposed what they characterized as the approach’s overemphasis on treatment at the expense of improving upon and expanding existing harm reduction measures. A focus upon scaling-up treatment was, they argued, ‘only half the picture’, incurring political and policy opportunity costs, including the resumption of campaigning for the introduction of PNSP. Such opposition to public health pragmatism with respect to particular interventions is not new. The historical introduction of urban sanitation [40], for example, or the management of tuberculosis [41], sex education in schools [42] or the campaigns for needle and syringe programmes in the United States [43] have all attracted intense debate. While acknowledging the instructive value of the tensions documented in our accounts, we nonetheless caution against constructing a false choice between either advocating for broad systemic change—both within and outside prison, including PNSP and drug law reform—or for a targeted public-health intervention that promotes universal treatment access for prisoners.

Notwithstanding that the degree to which it was emphasized or prioritized varied considerably, the absence of PNSP in Australian prisons was the issue most consistently raised among participants. Here, too, a certain public health pragmatism underpinned a number of responses. Several participants, for example, bemoaned the absence of PNSP as the ‘gold standard’ of prevention, while nonetheless extolling the availability and simplicity of treating re-infections if required (‘like treating a strep throat’). Participants generally supportive of treatment-as-prevention acknowledged it was ‘not optimum’ that prisons lacked the forms of harm reduction available in the community. Similar concerns regarding the lack of

primary prevention, including OAT, were raised by prisoner participants interviewed as part of our substudy [30]. Such concerns are now being borne out by the rising rates of in-prison re-infection in NSW, both in and beyond SToP-C sites. Health records from the NSW prison system show that some prisoners are now on their third, even fourth round of (re)treatment, with conservative estimates indicating that more than 50% of these re-infections occurred in prison. This has prompted senior figures from the relevant government agency to argue publicly that:

Given the growing body of evidence regarding people in prison needing to be retreated for HCV due to reinfection, it is recommended that evidence based strategies including PNEP, opioid agonist treatment and harm reduction education programs be introduced and/or increased in NSW and other jurisdictions to support upscaling HCV treatment ([44], n.p.).

We recognize that our substudy was designed in ways that could have affected the findings. Employing a purposive sampling method necessarily means retaining control over participant selection, if not over the content of the interviews themselves. While we maintain that this choice of recruitment method was appropriate, given the nature of our study, it may still have influenced the findings. Similarly, in those instances where a professional relationship between research team and participant pre-dated the study, the findings may have been affected. Although we maintain that some pre-existing familiarity was inevitable, given the size of the field and the expert nature of the sample, we nonetheless cannot be sure if or how such familiarity influenced the things said in interview. While some participants had been involved in SToP-C in an advisory or promotional capacity, proximity to the project was not reflected a greater endorsement of the model: a range of assessments was reported by experts with varying relationships with the project. Finally, the conditions of the SToP-C trial (themselves a reflection of Australia’s publicly subsidized DAA scheme) could also have affected participant assessments of acceptability and the degree to which they are generalizable. In the context of universal access, where all affected prisoners are eligible for multiple free (re)treatments if required, participants could arguably afford to be more generous and supportive in their assessments of the acceptability of treatment-as-prevention, despite the risk of re-infection in the absence of adequate primary prevention. In international contexts where treatment eligibility may be restricted on the basis of disease progression and/or drug and alcohol use, or where treatment is not cost-free for patients, then arguably there is more at stake in the decision to scale-up treatment as a form of prevention.

## CONCLUSION

This paper is a qualitative analysis of expert stakeholder assessments of the acceptability of the world's first trial of HCV treatment-as-prevention in prison. While most differences in assessment were a matter of relative emphasis and prioritization rather than absolute opposition, there was overt opposition among a small minority of participants. Arguing against the focus on treatment, they instead advocated for prevention-as-prevention, including the improvement and expansion of existing harm reduction measures. Irrespective of their assessment of the intervention's treatment-as-prevention approach, no participant opposed the universal rollout of the new DAAs in prison; the lack of effective primary prevention in Australian prisons was, however, a recurrent concern reported by nearly all participants.

## Declaration of interests

J.R. and L.L. have nothing to declare. C.T. has received speaker fees from AbbVie and Gilead Sciences and research funding from Merck.

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## Author contributions

**Jake Rance:** Conceptualization; data curation; formal analysis; investigation; methodology; project administration.

**Lise Lafferty:** Conceptualization; data curation; formal analysis; investigation; methodology; project administration.

**Carla Treloar:** Conceptualization; data curation; formal analysis; funding acquisition; investigation; methodology; project administration; resources; supervision.

## References

- Papaluca T., Thompson A. HCV elimination: breaking down the barriers to prison based care. *Hepatol Res* 2018; **4**: 64.
- Dolan K., Wirtz A. L., Moazen B., Ndeffo-mbah M., Galvani A., Kinner S. A., et al. Global burden of HIV, viral hepatitis, and tuberculosis in prisoners and detainees. *Lancet* 2016; **388**: 1089–102.
- Cooke G. S., Andrieux-Meyer I., Applegate T. L., Atun R., Burry J. R., Cheinquer H., et al. Accelerating the elimination of viral hepatitis: a *Lancet* Gastroenterology and Hepatology Commission. *Lancet Gastroenterol Hepatol* 2019; **4**: 135–84.
- Grebely J., Bruneau J., Bruggmann P., Harris M., Hickman M., Rhodes T., et al. Elimination of hepatitis C virus infection among PWID: the beginning of a new era of interferon-free DAA therapy. *Int J Drug Policy* 2017; **47**: 26–33.
- Dore G. J., Hajarizadeh B. Elimination of hepatitis C virus in Australia: laying the foundation. *Infect Dis Clin North Am* 2018; **32**: 269–79.
- Banerjee D., Reddy K. R. Review article: safety and tolerability of direct-acting anti-viral agents in the new era of hepatitis C therapy. *Aliment Pharmacol Ther* 2016; **43**: 674–96.
- Dore G. J., Feld J. J. Hepatitis C virus therapeutic development: in pursuit of 'perfectovir'. *Clin Infect Dis* 2015; **60**: 1829–36.
- Gane E. J., Hyland R. H., An D., Svarovskaia E., Sang P. S., Brainard D., et al. Efficacy of Ledipasvir and Sofosbuvir, with or without ribavirin, for 12 weeks in patients with HCV genotype 3 or 6 infection. *Gastroenterology* 2015; **149**: 1454–61, e1451.
- Wallace J., Richmond J., Ellard J., Power J., Lucke J. Eradicating hepatitis C: the need for a public health response. *Glob Public Health* 2018; **2018**: 1254–64.
- World Health Organization *Global Health Sector Strategy on Viral Hepatitis 2016–2021: Towards Ending Viral Hepatitis*. Geneva, Switzerland: World Health Organization, p. 2016.
- Hajarizadeh B., Grebely J., Martinello M., Matthews G. V., Lloyd A. R., Dore G. J. Hepatitis C treatment as prevention: evidence, feasibility, and challenges. *Lancet Gastroenterol Hepatol* 2016; **1**: 317–27.
- Butler T., Simpson M. *National Prison Entrants' Blood-borne Virus Survey Report 2004, 2007, 2010, 2013, and 2016*. Sydney, Australia: Kirby Institute (UNSW Sydney); 2017.
- Bretaña N., Boelen L., Bull R., Teutsch S., White P. A., Lloyd A. R., et al. Transmission of hepatitis C virus among prisoners, Australia, 2005–2012. *Emerg Infect Dis* 2015; **21**: 765–74.
- Wright N. M., Tompkins C. N., Farragher T. M. Injecting drug use in prison: prevalence and implications for needle exchange policy. *Int J Prison Health* 2015; **11**: 17–29.
- Cunningham E. B., Hajarizadeh B., Bretana N. A., Amin J., Betz-Stablein B., Dore G. J., et al. Ongoing incident hepatitis



- C virus infection among people with a history of injecting drug use in an Australian prison setting, 2005–2014: the HITS-p study. *J Viral Hepatol* 2017; **24**: 733–41.
16. Bonnycastle K. D. Injecting risk into prison sentences: a quantitative analysis of a prisoner-driven survey to measure HCV/HIV seroprevalence, risk practices and viral testing at one Canadian male federal prison. *Prison J* 2011; **91**; <https://doi.org/10.1186/s12954-015-0045-2>
  17. Lazarus J. V., Safreed-Harmon K., Hetherington K. L., Bromburg D. J., Ocampo D., Graf N., *et al.* Health outcomes for clients of needle and syringe programs in prisons. *Epidemiol Rev* 2018; **40**: 96–104.
  18. Platt L., Minozzi S., Reed J., Vickerman P., Hagan H., French C., *et al.* Needle and syringe programmes and opioid substitution therapy for preventing HCV transmission among people who inject drugs: findings from a Cochrane review and meta-analysis. *Addiction* 2018; **113**: 545–63.
  19. Luciani F., Bretaña N., Teutsch S., Amin J., Topp L., Dore G. A prospective study of hepatitis C incidence in Australian prisoners. *Addiction* 2014; **109**: 1695–706.
  20. Lafferty L., Rance J., Grebely J., Dore G. J., Lloyd A. R., Treloar C. 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. *Int J Drug Policy* 2020; **77**: 102693.
  21. Lazarus J. V., Safreed-Harmon K., Thursz M. R., *et al.* The micro-elimination approach to eliminating hepatitis C: strategic and operational considerations. *Semin Liver Dis* 2018; **38**: 181–92.
  22. Bartlett S. R., Fox P., Cabatingan H., Dillon J. E., El-Sayaed M. H., Elsharkawy A. E., *et al.* demonstration of near-elimination of hepatitis C virus among a prison population: the Lotus Glen correctional Centre hepatitis C treatment project. *Clin Infect Dis* 2018; **67**: 460–3.
  23. Brault M. A., Spiegelman D., Hargreaves J., Nash D., Vermund S. H. Treatment as prevention: concepts and challenges for reducing HIV incidence. *J Acquir Immune Defic Syndr* 2019; **82**: S104–s112.
  24. Bretaña N. A., Gray R. R., Cunningham E. B., Betz-Stablein B., Ribiero R., Graw E., *et al.* Combined treatment and prevention strategies for hepatitis C virus elimination in the prisons in New South Wales: a modelling study. *Addiction* 2020; **115**: 901–13.
  25. Dalgic O. O., Samur S., Spaulding A. C., Llerena S., Cobo C., Ayer T., *et al.* Improved health outcomes from hepatitis C treatment scale-up in Spain's prisons: a cost-effectiveness study. *Sci Rep* 2019; **9**: 16849.
  26. Sekhon M., Cartwright M., Francis J. J. Acceptability of healthcare interventions: an overview of reviews and development of a theoretical framework. *BMC Health Serv Res* 2017; **17**: 88.
  27. Milat A., Newson R., King L. *Increasing the Scale of Population Health Interventions: a Guide*. NSW Ministry of Health: Sydney, Australia; 2014.
  28. Maher L., Neale J. Adding quality to quantity in randomized controlled trials of addiction prevention and treatment: a new framework to facilitate the integration of qualitative research. *Addiction* 2019; **114**: 2257–66.
  29. Rance J., Lafferty L., Treloar C. 'Behind closed doors, no one sees, no one knows': hepatitis C, stigma and treatment-as-prevention in prison. *Crit Public Health* 2018; **230**: 130–40.
  30. Lafferty L., Rance J., Grebely J., Lloyd A. R., Dore G. J., Treloar C. Understanding facilitators and barriers of direct-acting antiviral therapy for hepatitis C virus infection in prison. *J Viral Hepatol* 2018; **25**: 1526–32.
  31. Robinson O. C. Sampling in interview-based qualitative research: a theoretical and practical guide. *Qual Res Psychol* 2014; **11**: 25–41.
  32. Australian Government Department of Health and Ageing *Fifth National Hepatitis C Strategy 2018–2022*. Canberra, Australia: Australian Government; 2019.
  33. Botfield J. R., Newman C. E., Zwi A. B. Drawing them in: professional perspectives on the complexities of engaging 'culturally diverse' young people with sexual and reproductive health promotion and care in Sydney. *Aust Cult Health Sex* 2017; **19**: 438–52.
  34. Newman C., Hughes S., Persson A., Truong H. M., Holt M. Promoting 'equitable access' to PrEP in Australia: taking account of stakeholder perspectives. *AIDS Behav* 2019; **23**: 1846–57.
  35. Holt M., Newman C. E., Lancaster K., Smith A. K., Hughes S., Truong H. M. HIV pre-exposure prophylaxis and the 'problems' of reduced condom use and sexually transmitted infections in Australia: a critical analysis from an evidence-making intervention perspective. *Sociol Health Illn* 2019; **41**: 1535–48.
  36. Fereday J., Muir-Cochrane E. Demonstrating rigor using thematic analysis: a hybrid approach of inductive and deductive coding and theme development. *Int J Qual Methods* 2006; **5**: 1–11.
  37. Lancaster K. Confidentiality, anonymity and power relations in elite interviewing: conducting qualitative policy research in a politicised domain. *Intern J Soc Res Method* 2017; **20**: 93–103.
  38. Neale J., Hunt G., Lankenau S., Mayock P., Miller P., Sheridan J., *et al.* *Addiction journal is committed to publishing qualitative research*. *Addiction* 2013; **108**: 447–9.
  39. Patton M. *Qualitative Research and Evaluation Methods, 3rd edn*. Thousand Oaks, CA: Sage; 2002.
  40. Mackenbach J. P., Sanitation: pragmatism works *BMJ* 2007; **334**; <https://doi.org/10.1136/bmj.39044.508646.94>
  41. Fairchild A. L., Oppenheimer G. M. Public health nihilism vs pragmatism: history, politics, and the control of tuberculosis. *Am J Public Health* 1998; **88**: 1105–17.
  42. Thomson R. Moral rhetoric and public health pragmatism: the recent politics of sex education. *Fem Rev* 1994; **48**: 40–60.
  43. Coutinho R. A. Needle exchange, pragmatism, and moralism. *Am J Public Health* 2000; **90**: 1387–8.
  44. Blogg J., Wright T., McGrath C., Clegg J. Hepatitis C reinfection in prisons with broad access to direct acting antiviral treatments. *Int J Drug Policy* 2020; **77**: 102597.