



Research Paper

Patient and healthcare provider perceptions of acceptability of fingerstick point-of-care hepatitis C testing at Aboriginal Community Controlled Health Services in Australia

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ABSTRACT

Background: Hepatitis C (HCV) is highly prevalent in First Nations communities globally. Barriers in the uptake of testing and treatment create challenges to realise elimination of HCV in these communities. In efforts to reduce barriers to testing and treatment, the SCALE-C study implemented an HCV test-and-treat intervention integrating point-of-care HCV testing and FibroScan®. SCALE-C was carried out at four Aboriginal Community Controlled Health Services (ACCHS; renowned for providing culturally safe care) in four regional towns in Australia. This qualitative analysis sought to understand healthcare provider and patient perceptions of acceptability of a community-based HCV test-and-treat intervention within ACCHS.

Methods: Semi-structured interviews were undertaken with 23 patient participants and 14 healthcare personnel (including Aboriginal Health Workers/Practitioners, nurses, general practitioners, and practice managers) from across the four ACCHS involved in SCALE-C. A coding framework was developed among study authors and informed by Sekhon's Theoretical Framework of Acceptability.

Results: The SCALE-C intervention enabled opportunities for healthcare providers to listen to patients, and for patients to feel heard (*affective attitude*). HCV testing was opportunistic and often occurred outside of the allocated SCALE-C clinical hours (*burden*). For patients, HCV testing within SCALE-C was viewed as a moral responsibility and ensured protection of self and others (*ethicality*). For personnel, SCALE-C (including following up visits) was regarded as an opportunity to engage with patients especially those with complex health needs which may be unrelated to HCV risk factors (*ethicality*). Patients and personnel widely regarded the SCALE-C intervention to be *effective*, and the test-and-treat model was preferable for both patients and personnel.

Conclusion: The SCALE-C intervention was broadly perceived to be acceptable among both healthcare providers and patients within ACCHS. Whilst the prioritisation of HCV was viewed as increasing patient engagement, it was also regarded as an opportunity for addressing other healthcare needs within Aboriginal communities. HCV test-and-treat models of care delivered by ACCHS simplify the HCV care pathway and ensure all HCV care is provided in a culturally safe setting (e.g., patients did not need to attend external services such as pathology).

Introduction

Hepatitis C is a global health issue, with worldwide goals to eliminate the disease as a public health threat by 2030 (World Health Organization, 2016). HCV is highly prevalent in communities and population groups where access to healthcare may be limited, or difficult to reach.

Priority populations for the elimination of HCV include those in which there is higher prevalence of HCV than the general population. This includes First Nations peoples, particularly in Australia, New Zealand, Canada, and USA where socio-economic disadvantage associated with ongoing impacts of colonisation and dispossession are likely associated with increased risk of HCV infection and impact healthcare engagement

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(Browne et al., 2016), particularly of stigmatised infections such as HCV (Treloar et al., 2016b). Thus, the scale-up of culturally appropriate and innovative models of HCV prevention and treatment is critical for elimination to be achieved.

Barriers to HCV care among priority populations, including First Nations people, in high income countries include stigma, ongoing drug use, competing social and mental health issues, and gaps in care (Amoako, Ortiz-Paredes, Engler, Lebouché, & Klein, 2021). Access issues, such as transportation, lack of awareness of HCV (e.g., risk factors) and availability of treatment, and lack of culturally appropriate health services have hindered HCV care uptake in First Nations communities in Canada (Skinner, Cote, & Khan, 2018). However, diverse and innovative models of care have reduced barriers and fostered HCV care engagement within these communities (Skinner et al., 2018). In Australia, Aboriginal and Torres Strait Islander people have indicated greater cultural satisfaction with appropriateness of HCV diagnosis when offered both pre- and post-test counselling, when concerns of stigma are reduced, and when greater overall satisfaction with their HCV care (Brener et al., 2016; Treloar et al., 2016a). Similar to barriers incurred in Canada, HCV care engagement for Aboriginal and Torres Strait Islander people in Australia is hampered by experiences of stigma and distrust in healthcare (Puljevic et al., 2022). Inequities in availability and acceptability of health services persist and result in disparities in HCV infections among First Nations peoples in Canada (Dunn et al., 2022), compared with the general population.

HCV point-of-care testing has emerged as an important diagnostic tool in simplifying HCV testing and reaching marginalised at-risk populations. Utilising a fingerstick blood sample, HCV point-of-care testing has been found to be an acceptable diagnostic tool among patients (Bajis et al., 2018; Lafferty et al., 2022). Specifically, HCV point-of-care testing reduces the psychological burden of waiting for test results, reducing the time-to-results from several days to same-day, potentially within the hour (Lafferty et al., 2022) and enables potential same day HCV treatment. These studies have predominantly involved mainstream population samples with limited research exploring the acceptability of HCV point-of-care testing approaches for Aboriginal and Torres Strait Islander communities.

The Strategies for hepatitis C testing and treatment in Aboriginal communities that Lead to Elimination (SCALE-C) study was implemented in partnership with four Aboriginal Community Controlled Health Services (ACCHS) in New South Wales (two sites) and South Australia (two sites) between 2019 and 2023. Aboriginal Community Controlled Health Services are primary health care services which provide “holistic, comprehensive, and culturally appropriate health care to the community which controls it” (National Aboriginal Community Controlled Health Organisation, 2022). Aboriginal Community Controlled Health Services fill a gap in mainstream health services and “provide flexible and responsive services that are tailored to the needs of local Aboriginal and Torres Strait Islander communities” (National Aboriginal Community Controlled Health Organisation, 2022). The SCALE-C study implemented a community-based HCV test-and-treat model of care integrating point-of-care fingerstick testing; non-invasive liver fibrosis assessment (FibroScan®); and linkage to care. Low-risk patients enrolled in SCALE-C underwent anti-Ab testing, while patients with high risk factors (e.g., history of injecting drug use, incarceration) received RNA testing. A qualitative sub-study was undertaken within SCALE-C to understand the perceptions of healthcare personnel (responsible for SCALE-C implementation) and patient participants regarding provision of an HCV test-and-treat model within ACCHSs.

The Theoretical Framework of Acceptability (TFA) encompasses a multifaceted construct of acceptability with which to understand considerations of patient and healthcare providers receiving and implementing the intervention, respectively (Sekhon, Cartwright, & Francis, 2017). Encompassing seven components of acceptability (affective attitude, burden, ethicality, intervention coherence, opportunity cost,

perceived effectiveness, and self-efficacy), the TFA is the first theoretical framework to comprehensively define acceptability (Sekhon et al., 2017). This framework was developed for use in the healthcare setting (Sekhon et al., 2017), and has been utilised across diverse studies to explore patient and healthcare provider perceptions of acceptability. With regards to its usability within Aboriginal-focused healthcare, this framework has been used to evaluate patient perceptions of acceptability among Aboriginal and Torres Strait Islander patients in Australia relating to speech rehabilitation following stroke (Ciccone, Armstrong, Hersh, Adams, & McAllister, 2019), and antenatal care (Brookfield, 2019), and among Métis people in Canada relating to acceptability of dried blood spot testing for bloodborne viruses and sexually transmissible infections (Landy et al., 2022). Utilising the acceptability framework, this qualitative analysis presents patient and healthcare provider perceptions of the ‘test and treat’ HCV model of care within four Aboriginal Community Controlled Health Services in Australia.

Methods

Fourteen healthcare personnel participated in interviews between February 2020 and September 2021 across the four Aboriginal Community Controlled Health Services. The emergence of the COVID-19 pandemic in March 2020 halted data collection, with ethics approvals suspended by one Human Research Ethics Committee during this time. Interviews recommenced later in 2020, however, ongoing/recurring outbreaks disrupted patient attendance within the four services involved in the SCALE-C study, with one site also being impacted by extreme weather events. Personnel interview eligibility included those who worked at one of the Aboriginal Community Controlled Health Services where SCALE-C was being conducted and had direct involvement in the service’s study involvement and/or implementation. Purposeful sampling was used to ensure comparable role representation across the services (Liamputtong, 2020), including Aboriginal Health Workers/Practitioners, nurses, general practitioners, and practice managers. Personnel participants were contacted by email, either by one of the project coordinators or one of the interviewers and invited to participate in an interview. Informed consent was obtained prior to interview commencement. Personnel participants were only known to the interviewers through virtual meetings relating to this study.

Twenty-four patient interviews were conducted between May 2021 and July 2022 across three of the Aboriginal Community Controlled Health Services. Potential patient participants were approached by ACCHS personnel during campaign weeks (high intensity testing events conducted with on-site support of study team members). Patients who were interested in an interview were then introduced to the interviewer. All but one of the patient interviews were conducted face-to-face during SCALE-C campaign weeks (i.e., targeted recruitment periods). The fourth health service did not run a final campaign week and thus patient participants were not engaged for interviews at this site. Patient eligibility included being an existing patient at one of the four ACCHS and having undergone point-of-care HCV testing as part of the SCALE-C study, including those with high and low self-reported HCV risk factors (e.g., history of injecting drug use and no history of injecting drug use). To ensure cultural safety of patient participants, all patient interviews were conducted by an Aboriginal interviewer. Participants were offered the choice of interviewing with an Aboriginal or an Aboriginal man to comply with cultural norms and values. One potential interviewee was not interviewed due to an identified family relation between interviewer and participant during the consent process. Patient participants received a \$40 voucher as compensation for their time; personnel participants were not remunerated. Informed consent was obtained prior to interview commencement.

Throughout and following data collection, authors discussed and reflected on the key emergent preliminary themes from the data. The Theoretical Framework of Acceptability was selected to understand broad acceptability of the ‘test and treat’ HCV model of care, owing to

the framework's applicability to understanding merits, and challenges, of a healthcare intervention from both healthcare personnel and patient participant perspectives (Sekhon et al., 2017). We used this approach of theory-informed analysis to reflect other literature in the area and provide a coherent interpretation for use by service providers. The framework considers the perspectives of participants engaged in delivering the intervention (i.e., healthcare personnel) and those receiving / participating in the intervention (i.e., patients). The framework can be used prospectively to assess acceptability prior to participation in the intervention, concurrently to understand perceptions during intervention implementation, and retrospectively. Patient participants were recruited for an interview after enrolment and participation in the SCALE-C intervention. As such, this analysis focuses on patients' retrospective perceptions of acceptability, and healthcare personnel's concurrent and retrospective perceptions of implementation of the intervention.

Interviews were audio-recorded, transcribed verbatim, then checked for accuracy. Deidentified transcripts were uploaded into NVivo11 qualitative software. A comprehensive coding framework was developed among the authors, informed by the interview guide and Sekhon's Theoretical Framework of Acceptability (Sekhon et al., 2017), and included additional themes emergent during data collection including COVID-19, cultural factors and considerations, HCV care cascade, and miscellaneous. Deductive coding was completed using the seven components of acceptability: affective attitude, burden, ethicality, intervention coherence, opportunity cost, perceived effectiveness, and self-efficacy (definitions of each are provided in the Results). Two patient transcripts were independently coded by the first two authors; coded transcripts were then compared to ensure similar interpretation of the data against the seven acceptability components. Disagreements were discussed and consensus was reached. The first author coded all of the personnel transcripts; the second author coded the remaining patient transcripts. After coding was completed, data within the additional nodes beyond the seven acceptability components were reviewed to ensure all data relevant to acceptability was accurately captured. Only data within the acceptability components were included in this analysis.

Ethics approvals were obtained from three human research ethics committees: Aboriginal Health & Medical Research Council of NSW (1474/18), Aboriginal Health Research Ethics Committee (04-18-797), and St Vincent's Hospital Sydney (2019/ETHO3406).

Pseudonyms and age are presented alongside patient participant quotes. The four health services have been labelled as "A", "B", "C", and "D" to protect participant confidentiality, with participants' respective health service presented alongside quotes. Patient participants' age is noted broadly rather than specifically (e.g., 40s rather than 43).

Results

Twenty-three patients participated in semi-structured interviews. Patient participants were predominantly older (median age 57), long-standing clients of their respective Aboriginal Community Controlled Health Service (median 10 years), with similar male (n=12) and female (n=11) representation. Five participants reported a history of injecting drug use; two participants had an active HCV infection testing HCV RNA positive on the GeneXpert® point-of-care test (both were self-reported HCV reinfections). All but two patients identified as Aboriginal or Torres Strait Islander; Aboriginal (n=20), Torres Strait Islander (n=1), non-Indigenous (n=2).

Semi-structured interviews were conducted with n=14 personnel participants across the four Aboriginal Community Controlled Health Services participating in the SCALE-C study, and included general practitioners, nurses (including health service nurses and study nurses employed to deliver SCALE-C), Aboriginal Health Practitioners, and practice managers.

Affective attitude

Affective attitude refers to "how an individual feels about the intervention" (Sekhon et al., 2017:8). The role of trust as affecting clinical interactions relating to the SCALE-C intervention was raised by both healthcare personnel and patients. Trust influenced affective attitude during HCV care, as it enabled patients to be empowered (thereby increasing job satisfaction for personnel) and, for patients, trust in clinicians resulted in them feeling "good" and that their health needs were being prioritised. Ultimately, the SCALE-C intervention enabled opportunities for healthcare providers to listen to patients, and for patients to feel heard.

The impact of the point-of-care testing ... it's been a very positive one, because people feel empowered when they found out, "yes I've got it and yes, I'm going to be treated" and that makes them feel really good, so it's a real empowerment [...] and it's a great form of engagement [...] and building a relationship just there and a sense of trust as well. (Health Service A, Personnel Participant 2)

It was actually good to know that they [healthcare workers] are aware of what it is that I do [injecting drugs] and they're just really trying to help out with my safety and wellbeing because where else would you get tested? (Tahliah, 40s, Health Service C)

Similar to trust, many healthcare providers described a commitment to community as influencing their affective attitude of the SCALE-C intervention, with one participant noting "it's my community" (Health Service B, Personnel Participant 2) when asked what attracted them to being involved in SCALE-C. Additionally, the potential protective ripple effect, and subsequent community benefit of testing and treating individuals for HCV, was also raised as fostering acceptability of targeted HCV care engagement.

Obviously, we have a lot of people here that you know, come in and they've got high risk factors and it was, you know an awesome opportunity to be able to just test them there and then, which is good, it's good for us, it's good for the client, it's good for the community because you get to know straightaway and it's not really a big deal, because it's just a finger prick, job done sort of thing. (Health Service D, Personnel Participant 2)

For patients, affective attitude was predominantly influenced by the ease of fingerstick blood collection and point-of-care testing, with many participants describing this type of testing as "quick and easy" and "non-invasive" compared with standard testing via venepuncture. As Josiah describes, this was especially valuable for patients with poor veins due to injecting drug use.

And what made you decide to get a test for the hepatitis C virus infection or take part in SCALE-C today? I've been wanting to do this test for a long time, but yeah, just a bit intimidated or nervous, [...] but today it was just walk in and get it done, and I was like "that was so good". (Liam, 20s, Health Service A)

Quick, fast, two seconds, didn't hurt. In and out, done. [...] It's a lot less scary than sitting there pulling my sleeve up waiting for a needle. (Coen, 20s, Health Service C)

Your veins when you are on drugs, your veins get scarred and it's hard for them to find them, so they are digging around, yeah. But yeah, it's a lot easier and quicker you know, yeah. A lot less painful. (Josiah, 30s, Health Service B)

Burden

Burden refers to "the perceived amount of effort that is required to participate in the intervention" (Sekhon et al., 2017:8). Somewhat unsurprisingly, some personnel reported that integrating a new

intervention into their existing duties increased their workload burden. However, as the quote below demonstrates, the additional burden may be offset by positive affective attitude towards the intervention. That is, enhanced employment satisfaction achieved through intervention implementation reduced frustrations that may otherwise have been felt with the increased duties of implementation.

Has hepatitis C point-of-care testing added to or reduced your workload? Most certainly added to for my personal workload [laughs]. **In what ways?** Well, only because it's another job under my umbrella, but that's okay, I'm happy to do it. I love being a part of the program. (Health Service B, Personnel Participant 3)

Personnel across services described the opportunistic and on-demand nature of HCV testing / care engagement as often occurring outside of the allocated hours dedicated to implementing SCALE-C. Study nurses typically dedicated specified hours within their work week solely for delivering the intervention, however, patients didn't always present within these scheduled hours. Thus, given the unpredictable nature of patients presenting and interested in HCV testing / care, many nurses had to adapt to an ad hoc schedule which impeded upon time management of their other clinical and administrative duties.

I'm usually allocated hours for SCALE-C, so it doesn't impact on my workload, but I would have to say it does, because sometimes when I'm doing SCALE-C and I'm asked to go and ... I'm pulled away from doing the data collection or what I'm doing, because someone in the clinic may need a blood test or whatever, so you know, I am called away from it to do other things sometimes. So, I guess that's increasing my workload. (Health Service A, Personnel Participant 2)

We can't have someone here available every day who can just sit around and do nothing and then test someone when someone comes in, obviously that doesn't work financially. So, it's hard to structure, but in the early days, I had half a day a week allocated, so I felt that was better. (Health Service B, Personnel Participant 3)

Staff shortage was consistently raised as a barrier to study implementation, or burden of implementation, with many personnel describing scenarios whereby understaffing hampered capacity to provide HCV care to patients in line with the project protocol (e.g., a one-stop shop intervention rather than standard multi-visit care cascade). Ultimately, it was viewed that upskilling of additional healthcare workers to be HCV point-of-care testing operators would reduce workload burden, with services typically relying on only one person who was trained and confident (self-efficacy) to use the point-of-care machine (and was also responsible for study procedures and data collection). Thus, more trained HCV point-of-care testing operators would ensure more sustainable running of the SCALE-C program with less disruption during staff shortages – e.g., annual leave. It should be noted that conducting liver assessments using FibroScan® was part of the clinical pathway for patients receiving a positive HCV result. However, personnel participants focused on implementation of point-of-care testing, likely as this was the key diagnostic tool used with all patients enrolled in SCALE-C.

Just to put it all onto one person, or one or two people is a lot, because I mean and furthermore, if they are on annual leave, then what do you do? "Oh well, come back in another two weeks" but you know, so then you'd tend to drawing blood if it was a high risk I suppose, but yeah, just I think we would get a lot more done if and yeah, if we were all trained and did that and then we could follow it up with our own clients as well. So you know, I'm talking about all the stuff like learning more about hep C and HIV and all your blood borne viruses in conjunction with that point-of-care testing, so you get that information out there into the community so we can constantly be educating people. (Health Service D, Personnel Participant 2)

For patients, HCV RNA point-of-care testing within a single visit, inclusive of FibroScan®, simplified the HCV care pathway, ultimately reducing the care engagement burden for patients. This was achieved through a one-stop-shop process for testing and results via point-of-care testing compared with standard of care. And, as Charlie explains, SCALE-C offered a more streamlined service that does not require additional off-site visits to external healthcare providers (such as pathology).

It was good to have them virtual instant result instead of have tests, and the bloods and sent away, then to make an appointment at the hospital or whatever for the ultrasound, you know, we have to go virtually to the liver clinic, okay, so you've got to make an appointment I dare say months in advance, so this way it was almost instantaneously and the result like I said, it alleviated a lot of my stresses and worries about it. (Charlie, 60s, Health Service B)

Point-of-care HCV RNA test results are available on the GeneXpert® in one hour. Whilst it is often viewed that this is more amenable to patients – and reduces the overall timeline of the care cascade – one patient noted that this more immediate time commitment (i.e., waiting for results), may not be suitable for all.

I just think the finger stick test is better, easier, simpler and quicker. The one thing I did notice in doing the test, the time it takes, which is fairly understandable, but some people just don't like that wait from what I hear. (Kylee, 60s, Health Service A)

Ethicality

Ethicality is the "extent to which the intervention has good fit with an individual's value system" (Sekhon et al., 2017:8). SCALE-C was broadly regarded as ethical in the intervention's capacity for healthcare personnel to engage with patients about their HCV care, and opportunities for meeting complex health needs which may be unrelated to HCV risk factors. As the participant below suggests, ongoing follow up within SCALE-C (i.e., follow up engagement for treatment or other care engagement) offered opportunities to build patient trust and to deliver holistic healthcare.

Oh yes certainly a benefit, [...] we have a lot of clients that have lots of different issues, but that having ... even if it's just having ... like [Clinical Nurse] going out and visiting them or us keeping in contact with them, to follow up with appointments, especially with appointments, is just having that contact with someone and they know that they can turn to us if something goes wrong, whether it has ... like it might not have anything to do with their health, per se, but anything in their life, they know that they've got someone here that they can turn to. (Health Service D, Personnel Participant 3)

Personnel viewed the 'test and treat model' as having the potential to protect patients from stigma through the provision of fingerstick testing on-site. Retaining HCV testing 'in-house' so to speak, within a known culturally safe healthcare service, removes the need for "exposure" of personal histories revealed by skin marks at a mainstream pathology service: this may reduce patients' risk of stigmatization from a phlebotomist.

A lot of the clients we have here that are heavy IV [intravenous] drug users, they don't want to go the lab and have bloods done, because they don't like showing their arms. So that's what I find. "Can you have a look on this arm, I don't want you to look at this one" But on the fingertip, there's no ... you know a drop of blood from the fingertip there's no ... they don't have to expose. (Health Service D, Personnel Participant 2)

From the patient perspective, ethicality ranged from personal responsibility – "I'm doing the right thing by having myself tested. That way I keep myself and anyone that I could potentially have a

relationship with, also safe” (Tahliah, 40s, Health Service C) - through to enhanced opportunity for ethical healthcare. Contrary to personnel concerns that a disease-focused intervention may be counter to culturally safe healthcare, some participants saw value in the opportunity to be reassured in the potential event of a positive result.

They even explain to you to satisfy your nerves that they will say things like, “don’t panic if it’s positive, because these things are curable, treatable and curable” and they really do that and they make you feel better. (Mary, 60s, Health Service B)

Intervention coherence

Intervention coherence is the “extent to which the participant understands the intervention and how it works” (Sekhon et al., 2017:8). Personnel considerations of intervention coherence encompassed both streamlining of the HCV care cascade and opportunities for disease surveillance. HCV RNA test results in one hour were viewed as likely to enhance the success of the HCV care cascade, including initiation onto treatment, and further down the track including reduced likelihood of loss to follow up.

To be able to give them a point-of-care service they can actually know within the hour that they have got hep C, that can be treated on the spot [...] it’s just been so successful. (Health Service A, Personnel Participant 4)

The surveillance aspect was regarded as allowing greater monitoring of disease prevalence within the community which may, ultimately, result in greater targeting of testing and treatment within the community through identification of injecting networks.

Ultimately, I think everyone benefits from this. The client benefits for peace of mind, and statistically, we get to know what’s out there a little bit quicker and the clusters of our clients, because we know we get to know them very well and who they hang around with, so then it also gives us that time to think “well okay, hang on, you might have been positive now we need to check your cluster of friends”. (Health Service D, Personnel Participant 2)

For patients, intervention coherence was maximised through patient engagement during SCALE-C visits. These clinical interactions provided educational opportunities for patients to learn about HCV risk factors, how the disease affects the body, and new oral treatments available.

Overall, I think it was pretty good. It was more about what hepatitis, like I know about it, but knowing what they can actually do now with it and how it can be treated, it’s really good. (Marli, 30s, Health Service A)

Yeah, just educating people why it’s important and why we should do it and hep C is pretty high in our people, so if we can eliminate those risks and if we can find ways to educate people and to participate, I think that’s awesome. (Jewan, 20s, Health Service A)

Opportunity cost

Opportunity cost considers the “extent to which benefits, profits or values must be given up to engage in the intervention” (Sekhon et al., 2017:8). There were concerns from personnel about the longevity of such an intervention without inclusion of HCV point-of-care testing as a rebatable healthcare item under Australia’s universal healthcare system – Medicare.

If it [point-of-care testing] becomes a core business, then it would be good to be able to do all STI’s, bloodborne viruses as point-of-care and claim it as a ... **As a Medicare item?** Yeah, yeah. We are doing all this stuff, so the organization should be able to claim it you know. I know this is research and you know, we’re funded and

everything by the research, but if this is going to roll out, then there’s got to be ... you don’t have to do it as part of an adult health assessment to be able to claim it, but it can be a [Medicare Benefits Schedule] item that we can ... that Aboriginal health services can claim. (Health Service D, Personnel Participant 1)

Though point-of-care testing was regarded as a simpler process for HCV testing, personnel held strong views that point-of-care testing should not diminish the quality of holistic care provision – as HCV point-of-care testing is only one aspect of health the patient may be presenting with. In this regard, integration of an intervention that focused on one disease was perceived to run the risk of siloing healthcare, and a contrary approach to healthcare within Aboriginal and Torres Strait Islander communities in which holistic care is culturally appropriate care (Davy et al., 2017).

So I still think that most medical care does involve an interaction with a practitioner and that can be a nurse practitioner absolutely and the relationship is established whereupon, it’s not just you know ... the testing is important, having really good treatment is really important, but for it to work it really has to be part of a therapeutic relationship. It’s never just the hep C you know, it’s depression, you know your drug or it’s a thousand other things that is part of the person’s actual health that needs to be taken into account and I don’t know that point-of-care does much other than make it easier for people to get tested. (Health Service C, Personnel Participant 2)

Perceived effectiveness

Perceived effectiveness considers the “extent to which the intervention is perceived as likely to achieve its purpose” (Sekhon et al., 2017:8). Aligning with patient descriptions of point-of-care testing and FibroScan® in a single visit as reducing burden, personnel perceived simplifying the care pathway as an effective strategy for engaging, and retaining, people along the HCV care cascade. However, as the second quote below describes, there is an overlap in ethicality as targeted HCV care engagement with patients can foster conversations about prevention and opportunity for linkage to other relevant healthcare.

So, I think point-of-care testing is obviously really important just because of how quickly that result comes back and how easily a patient can be diagnosed and treated. Obviously, before we were part of this project, we had you know lots of outstanding hepatitis C positive results that were never treated, because they just wouldn’t follow up and go and see the specialist and just through you know other constraints of their own. (Health Service B, Personnel Participant 3)

It also gives us an opportunity to talk about not just the treatment, but to talk about future prevention and encourage you know avoidance of habits that can lead to that, so it opens doors in regards to thinking about it more. More about IV drug use prevention of IV drug use, programs to help people with IV drug use, so yeah it’s good if you’ve got one of the links in the chain is what you can do about it. (Health Service A, Personnel Participant 1)

Self-efficacy

Self-efficacy refers to the “participant’s confidence that they can perform the behaviour(s) required to participate in the intervention” (Sekhon et al., 2017:8). Personnel participants across all services indicated that confidence in using the GeneXpert® increased over time and through routine use. Learning through trial and error was regarded as an effective strategy for developing user confidence. Additionally, services were able to contact one of the study partner research institutes for immediate support – a process that was deemed as beneficial in developing self-efficacy among point-of-care operators.

No look, I feel fine with using it. Definitely confident and it's got more fluent and I'm more efficient with it and yeah. (Health Service B, Personnel Participant 1)

We've had a few technical issues. Now I would say, how much is the machine or the user of the machine, I think you know there's probably a bit of both, but I think that the most problem has been building the experience and making a few errors. A few errors show up on the machine and you know we ask "why?" sometimes, and we might make a phone call down to the back-up assistance at [research institute] and they talk us through and you know that way we learn. [...] In the early stages there was teething problems, but they work it out and sometimes sing out for some help from [research institute] and that was always readily available, so I think the confidence is there now. (Health Service A, Personnel Participant 1)

Developing competency wasn't isolated to inputting the sample and operating the GeneXpert, but also included the collection of fingerstick blood samples from patients. This required some learning for at least one personnel participant who noted, "Now I'm more comfortable with really squeezing the finger" (Health Service A, Personnel Participant 2).

Discussion

Both personnel and patient participants within this qualitative sub-study described high levels of acceptability of the HCV test-and-treat model of care (SCALE-C).

Affective attitude was influenced by notions of trust for both healthcare personnel and patients, as well as the intervention fostering healthcare providers' commitment to community. Trust in healthcare services is a complex issue for Aboriginal and Torres Strait Islander people due to historical and contemporary experiences of colonisation (Askew, Foley, Kirk, & Williamson, 2021; De Silva, Walker, Palermo, & Brimblecombe, 2022; Jones, Heslop, & Harrison, 2020). As noted by Tahliah (40s, Health Service C), the opportunity to be frank with healthcare providers about her HCV risks (i.e., injecting drug use), helped her to feel more visible and supported in seeking HCV healthcare. Patient visibility and being heard is indicative of culturally safe healthcare (Hole et al., 2015). Collectively, these perceptions of affective attitude suggest that targeted HCV-focused healthcare interventions delivered in a culturally safe setting fosters healthcare engagement.

Burden of study implementation was heightened for personnel due to staff shortage and the opportunistic nature of HCV testing which often fell outside of designated clinical study hours. Delivering HCV care in a way that reduces patient barriers and is responsive to patient need (such as extended clinical hours) is in line with culturally appropriate healthcare (Lim, Phillips, Bradley, & Ward, 2023). Future disease-specific interventions tailored for Aboriginal and Torres Strait Islander people should consider additional support mechanisms for staff to ensure patient care in ways that are accessible to the patient.

Notions of ethicality were largely focused on the intervention's capacity to engage people in healthcare, though there were some concerns of siloing healthcare rather than providing culturally appropriate holistic care (Gomersall et al., 2017). Retaining HCV testing in-house via fingerstick blood collection was viewed as a protective factor against stigma for patients who would not need to attend external pathology providers and display markings on their arms. This fostered delivery of a comprehensive HCV intervention within a culturally safe setting. Patients regarded the SCALE-C study as highly ethical, with some participants indicating personal responsibility as a motivator for participation (i.e., wanting to confirm their HCV status to protect family), and the reassurance provided by healthcare practitioners throughout the testing process. These educational interactions reflected power-neutral conversations which can foster trust and increased healthcare engagement (Jennings, Bond, & Hill, 2018). Importantly, fingerstick blood testing in-house, as opposed to venepuncture blood-draw collected at a pathology centre, was regarded as likely to prevent experiences of stigma

with external healthcare providers. Stigma has routinely been recognised as a major barrier to HCV care engagement (Harris et al., 2021; Saine et al., 2020; Treloar, Rance, & Backmund, 2013), particularly among Aboriginal and Torres Strait Islander people who may experience racial discrimination in mainstream health services (Brenner et al., 2016; Lim et al., 2023; Rashidi, Higgs, & Carruthers, 2020; Treloar et al., 2016b). Thus, HCV point-of-care testing using fingerstick blood collection delivered within Aboriginal Community Controlled Health Services is highly acceptable and is a culturally safe approach for HCV testing among Aboriginal and Torres Strait Islander communities.

Notions of intervention coherence and opportunity cost were brief, indicating broad acceptability among these two components. Personnel understood the potential surveillance benefits of enhanced HCV testing strategies in their community whilst patients benefited from increased HCV education during SCALE-C participation (intervention coherence). The long-term sustainability of HCV point-of-care testing, such as reimbursement through Australia's universal healthcare program (Medicare), was raised as a consideration of opportunity cost from healthcare personnel. A recent cost-effectiveness analysis reported greater cost-effectiveness of HCV point-of-care testing compared with standard-of-care, particularly in populations at risk of HCV (Shih et al., 2023). Importantly, without ongoing financial sustainability, the surveillance benefits of enhanced HCV testing in Aboriginal Community Controlled Health Services will likely not be maintained post-study.

Perceived effectiveness of the SCALE-C intervention was most prominent with regards to the simplification of the HCV care pathway through the use of in-house HCV point-of-care testing, non-invasive liver disease assessment and the same day initiation of treatment. Consequently, there was less opportunity for patient loss to follow up. Recent research has shown that Aboriginal and Torres Strait Islander people achieve comparable cure rates as non-Indigenous Australians with direct-acting antiviral therapies, however, Aboriginal and Torres Strait Islander people experience greater loss to follow up along the HCV care cascade (Clark et al., 2022).

Our findings demonstrate high acceptability of a one-stop-shop HCV model of care within a culturally safe healthcare setting. This approach simplified testing and reduced healthcare visits, providing more timely access to test results and treatment. Whilst some personnel described some challenges with developing confidence and competency in using the GeneXpert and fingerstick blood collection devices, issues were quickly overcome with support from one of the two partner research institutes and familiarisation through regular testing (self-efficacy). Frequency of use of point-of-care technology has been reported to enhance self-efficacy among healthcare workers (Lafferty et al., 2021), suggesting that scale up and increased implementation of point-of-care testing will foster greater self-efficacy among healthcare personnel.

This study has limitations. It was conducted within four Aboriginal Community Controlled Health Services across two states in Australia. Whilst findings may not be transferable to other locations within Australia, the geographic and community diversity presented will likely carry some consistency in other First Nations populations. Patient participants were not interviewed from one of the health services involved in implementation of the SCALE-C study. There may have been varying perspectives from this participant group, however, personnel perspectives were largely congruent with those of other services. Patient participants who were interviewed were older; younger people experiencing different life stages may have diverse perspectives of acceptability of a test-and-treat HCV intervention within Aboriginal Community Controlled Health Services. We were unable to interview people who did not take part in the SCALE-C project, that is, those who declined the offer of a point-of-care test.

Conclusion

The SCALE-C HCV test and treat intervention was broadly acceptable among both patients and personnel across the four sites where the study

was implemented. Establishing and building patient-provider trust were critical factors of both affective attitude and ethicality. Whilst staffing issues were an additional burden for healthcare personnel, services ensured culturally safe and patient-centred care through adapting clinical hours to allow for opportunistic testing. Providers understood the intervention and perceived targeted HCV testing to be an effective tool for patient engagement and education. Regular use of point-of-care diagnostics aided in streamlining new technology into routine clinical practice. These findings suggest that, when delivered in a culturally safe setting, the HCV test-and-treat model is acceptable to both patients and personnel within ACCHS.

Ethics statement

Ethics approvals were obtained from three human research ethics committees: Aboriginal Health & Medical Research Council of NSW (1474/18), Aboriginal Health Research Ethics Committee (04-18-797), and St Vincent's Hospital Sydney (2019/ETHO3406).

CRediT authorship contribution statement

L Lafferty: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **M Beadman:** Writing – review & editing, Investigation. **J Ward:** Writing – review & editing, Funding acquisition, Conceptualization. **E Flynn:** Writing – review & editing, Project administration. **S Hosseini-Hooshyar:** Writing – review & editing, Project administration. **M Martinello:** Writing – review & editing, Funding acquisition, Conceptualization. **C Treloar:** Writing – review & editing, Methodology, Funding acquisition, Conceptualization.

Declaration of competing interest

LL has received speaker fees from AbbVie and Gilead Sciences.
MB, JW, EF, and SH-H have nothing to declare.
MM reports salary support from the Australian National Health and Medical Research Council Early Career Fellowship.
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