

Focus Testing Potential Online Sexually Transmissible Infections and Blood-borne Viruses Testing Models in NSW

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Publication details:

Commissioning Body: NSW Ministry of Health

Publication Date:

2025-03-04

DOI:

<https://doi.org/10.26190/unsworks/30950>

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Focus testing potential online sexually transmissible infections and blood-borne viruses testing models in NSW

Analysis of focus testing data

February 2025

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Acknowledgement of country

We value the cultures, knowledge and practices of Aboriginal and Torres Strait Islander Peoples and how this contributes to quality research. We are committed to not perpetuating harms that have been caused by research on and about Indigenous Peoples. We embrace and honour Indigenous knowledges and continue to learn from Indigenous Peoples where we work.

Acknowledgements

The research team would like to thank the focus group participants who generously shared their experiences and insights for the study. We are also grateful to Lisa Ryan, the group facilitator, and the support of the project investigators, associate investigators, and members of the Project Sector Advisory Group and Project Aboriginal Advisory Group.

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This report is an output of the “Focus testing potential online sexually transmissible infections (STI) and blood-borne viruses (BBV) testing models in NSW” research project, funded by NSW Ministry of Health.

Suggested citation:

Drysdale K., Slattery, C., Ryder, N., Avasalu, R., and Treloar, C. (2025). Focus Testing Potential Online Sexually Transmissible Infections and Blood-borne Viruses Testing Models in NSW. Sydney: UNSW Centre for Social Research in Health. <https://doi.org/10.26190/unsworks/30950>

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Glossary

ACCHO	Aboriginal Community Controlled Health Organisation
ART	Anti-retroviral therapies
BBV	Blood-borne viruses (e.g. HIV, hepatitis)
CALD	Cultural and linguistically diverse people/communities
CSRH	Center for Social Research in Health, UNSW Sydney
GP	General Practice / General Practitioner
HRT	Hormone replacement therapies
MSM	Men who have sex with men
NSW	New South Wales
NSW MH	New South Wales Ministry of Health
NSP	Needle and syringe programs
PrEP	Pre-exposure prophylaxis
PFSHS	NSW Health funded sexual health services
SHC	Sexual Health Clinics
STI	Sexually transmissible infections
STIPU	NSW STI Programs Unit

Executive summary

Regular and routine testing for sexually transmissible infections (STI) and/or blood-borne viruses (BBV) is a key strategy in the reduction of infections, and identifying and treating infection in individuals and their partners will interrupt transmission in communities. There is a rapidly growing body of evidence and practice indicating that online testing options can improve timely access to STI/BBV testing, is acceptable to priority populations, and is a cost-effective service model. Online and/or self-collection STI/BBV testing models can take many forms, such as non-interactive algorithm-based assessments (e.g. SH:24) and telehealth-based services (e.g., MyChech, STIGMA or Hey Fella) and can include a suite of options, including public, community-led and privately provided services. For the purposes of this report, we refer to online and/self-collection testing model put forth by MH (see Figure 1 Currently proposed online testing model).

The study was carried out by NSW Health to contribute to the future development of online STI/BBV testing models for priority populations residing in New South Wales (NSW). This is achieved by identifying the key elements that would facilitate increased acceptability, accessibility, and use of an online testing platform, and its promotion.

Priority populations who took part in focus groups in respect to this study are:

- Aboriginal and Torres Strait Islander women
- Gay, bisexual and other men who have sex with men
- Overseas born people who arrived in Australia in the past four years
- People from culturally and linguistically diverse backgrounds
- People in regional, rural and remote locations
- People who inject drugs
- Sex workers
- Sexually active young people under 30 years of age
- Trans and gender diverse people

Overall, participants had familiarity with a range of STI/BBV testing approaches and had high sexual health literacy. This document reports on the analysis of qualitative data collected by the Ministry of Health on focus testing potential online STI and/or BBV testing models in NSW.

Key findings

Key elements of an online testing model

Convenience, cost, and confidentiality were key factors for an online/self-collection BBV/STI model. However, the balance of or priority placed between the three common factors differed between priority populations.

There was a clear preference to having one platform that all priority populations could access, rather than have multiple ones targeted towards each - as long as criteria for inclusiveness was met.

Targeted services were seen as unnecessary or as encouraging differential treatment. Having a universal platform also reduced the risk that certain targeted platforms may be decommissioned or unavailable during times of scarce resourcing. Despite being an online platform, Aboriginal and Torres Strait Islander women preferred to have a peer-identified healthcare worker available to engage with potential users.

Tech and digital literacy were also key factors in the acceptability, accessibility and use of an online testing platform. Having options to access online testing was important. Health literacy was additionally seen as something that might present barriers to use among older people and culturally and linguistically diverse people.

Proposed testing model

Participants cited the need for both options to access the online testing platform: an online assessment or a telehealth appointment. There were notable pros and cons associated with each, as well as disparity in preferences among those who would prefer one option over the other. No participants cited major concerns with the six questions posed as part of the assessment, either online or via telehealth. However, participants believed it was important to impart information as to why those questions were asked, and what the responses might indicate in terms of testing requirements, especially if accessing an online platform with limited options for detailed discussion with healthcare workers. Assessments carried out by PFSHS were preferable to a user's local GP as long as standard confidentiality and privacy mechanisms were in place.

Convenience, speed, and accuracy were the main reasons on which participants based their preferences for testing. Perceptions on the convenience, speed and accuracy associated with each option was mixed, and there were preferences expressed for multiple options to be available if possible. Convenience versus speed, and speed versus accuracy, were perceived to require a balance of priorities from participants who would need to weigh up which option provided for their needs. If there was not a higher level of convenience associated with either options, those participants who already had easy or free access to STI and/or BBV testing currently were not likely to use the proposed model at all.

Experienced and perceived stigma, confidentiality and convenience was a factor in the acceptability and feasibility of the proposed notification model. As long as the person calling was sensitive, culturally appropriate and had undergone appropriate training, there were no strong preferences as to whether PFSHS, other sexual health clinics or non-government organisation (NGO) provide the notification. Participants preferred to know if their tests were negative. A SMS simply informing a user that they have tested positive for an undisclosed STI and that they need to make an appointment with their GP or local SHC was not recommended, and participants preferred to know what STI or BBV that they had tested positive for in the SMS content. For purposes of legitimacy and to minimise the potential for scammers to impersonate healthcare providers, preferences were expressed for the analysis and results to be synchronised through NSW Health. Having the results provided for notifiable infections by a peer worker was also recommended.

Dissent to the proposed online testing model was expressed among the Aboriginal and Torres Strait

Islander women's focus group. Continuity in care was also perceived to be important for this population, with either the same healthcare provider or peer navigator who provided the assessment, received the results and communicated those results to the user. Strong encouragement was expressed for a peer-based model in which an Aboriginal healthcare provider brings the assessment criteria and self-sampling kit to the user's home and subsequently calls with the results. This was seen to alleviate stigma, minimise the risk of misinterpretation, and provides for appropriate cultural safety.

Recommendations

- Broader STI/BBV testing enablers and barriers need to be met/mitigated for successful uptake.
- Having multiple options for assessment.
- Having multiple options for testing.
- Having multiple options to receive results.
- Having multiple options for referral for treatment.
- Ensure the perception of privacy and confidentiality on the online site.
- Ensure cultural safety and appropriate training.
- Educate service users.
- Expanded online platform capability.
- Customise telehealth requirements.
- Customise notification requirements.
- Ensure both wide and culturally targeted promotion of service.

Limitations

As a number of priority populations were recruited through health organisations, such as local health districts staff, Aboriginal Community Controlled Health Services, and Multicultural Health Service Coordinators, this resulted in a participant cohort with a high degree of sexual health literacy, preexisting connections with sexual health services (either through employment or engagement with sexual health testing), and high levels of STI/BBV testing.

1. Introduction

This document reports on the analysis of qualitative data collected by NSW Ministry of Health (MH) on focus testing potential online sexually transmissible infections (STI) and blood-borne viruses (BBV) testing models in New South Wales (NSW). Focus groups were convened and facilitated by independent research consultation, Lisa Ryan from Hecate Consulting, between December 2023 and March 2024, and were all conducted on video conferencing software Zoom. The analysis was conducted by researchers at the Centre for Social Research in Health, UNSW Sydney (CSRH) on transcriptions of audio recordings of the focus groups and incorporates notes from Lisa Ryan and extracted data from the chat functionality on Zoom. This report details CSRH's findings of the focus group data.

1.1 Background

In 2021, notification rates of chlamydia and gonorrhoea, in NSW were the lowest in five years (NSW Health, 2021). These reductions were likely driven by changes in behaviours and service provision resulting from COVID-19 restrictions. The gonorrhoea notification rate decreased by 23% between 2020 and 2021, with 91 notifications per 100,000 population in 2021. Rates were highest among people aged 22 to 29 years. Although the male notification rate was 4.2 times higher than females, both male and female rates decreased by 22% and 25%, respectively. For chlamydia, the 2021 notification rate of 305.7 notifications per 100,000 population, representing a 7% decrease from 2020. Those aged 20 to 29 years had the highest rates, however they also showed the largest reductions in notifications compared to past years.

In contrast, infectious syphilis notifications increased by 2% between 2020 and 2021, with 21.2 notifications per 100,000 population (NSW Health, 2021). Increases occurred in metropolitan Sydney and regional and rural areas, in particular females of reproductive age. Of the women diagnosed with infectious syphilis of reproductive age, 16.4% were pregnant. Although not evident in NSW so far, an outbreak of infectious syphilis among Aboriginal and Torres Strait Islander people in other states is of particular concern. In January 2020, there were 44 outbreak cases reported from the four outbreak affected jurisdictions: nine in Queensland; 13 in the Northern Territory; 18 in Western Australia; and four in South Australia (Australian Government Department of Health, 2021). From the commencement of the outbreak to 31 January 2020, there were a total of 3,349 outbreak cases reported across the four outbreak affected jurisdictions: 1548 in Queensland (from January 2011); 1247 in the Northern Territory (from July 2013); 452 in Western Australia (from June 2014), and 102 in South Australia (from November 2016). In NSW, of the infectious syphilis notifications in 2021, 6.3% were among Aboriginal people, and an additional 11.2% did not have Aboriginal status stated. Among notifications where Aboriginal status was known, the infectious syphilis notification rate among Aboriginal people was 38.0 per 100,000 population in 2021, 1.5 times higher than the rate among non-Aboriginal people (17.9 per 100,000).

HIV diagnoses have declined since 2019, however this is likely still in effects of COVID-19 restrictions and changes to sexual behaviour (NSW Health, 2021). The greatest decline occurred among men who

have sex with men (MSM) in inner Sydney, in areas where over 20% of adult men are estimated to be gay. MSM outside this area have not experienced similar declines in HIV diagnoses.

Regular and routine STI and/or BBV testing is a key strategy in the reduction of infections. Identifying and treating infection in individuals and their partners will interrupt transmission in communities.

1.2 Rationale

In NSW STI and BBV testing has traditionally been provided by general practices (GP), Aboriginal Community Controlled Health Organisations (ACCHOs) and NSW Health funded sexual health services (SHS) via face-to-face (clinician patient/client) consultations.

While face-to-face service provisions have a key role in STI prevention and care, this service model has limitations. Limitations include hours of operation, wait times and need for appointments (Cassidy et al., 2018), fear of in-clinic interactions (Ryan et al., 2018), and client preference not to talk with providers about their sexual history (Evans & Cross, 2007). It has been well documented that stigma and discrimination is experienced by people living with HIV when accessing healthcare settings (Feyissa et al., 2019). Evidence indicates that Aboriginal and Torres Strait Islander peoples experience stigma and shame, and lack of confidence when accessing STI testing (Bell et al., 2020). The location and visibility of the clinic, appointment procedures, waiting rooms and waiting times created barriers to STI testing.

Online and/or self-collection STI/BBV testing models can take many forms, such as non-interactive algorithm-based assessments (e.g. SH:24) and telehealth-based services (e.g., MyCheck, STIGMA or Hey Fella) and can include a suite of options, including public, community-led and privately provided services. There has been an increasing shift toward online and telehealth services in recent years with limited understanding of consumer preferences and uptake. There is a rapidly growing body of evidence and practice indicating that online and/or self-collection testing options are acceptable, accessible and feasible (Baraitser et al., 2015; Greenland et al., 2011; Martínez-Riveros et al., 2024; Melendez et al., 2022; Ogale et al., 2019; Paudyal et al., 2015; Spence et al., 2024; Sumray et al., 2022; Wilson et al., 2016). Collectively, this literature found that online testing services for STIs and BBV may expand testing accessibility and use overall, and access to online testing for STIs is associated with increases in the average number of diagnoses per month. Online testing services have the potential to accommodate the anticipated needs and preferences of priority populations, especially as internet-based testing is widely viewed as being acceptable and is preferred over clinic-based testing by many individuals. This is due in part to the perceived convenience and anonymity of internet-based testing. Online testing services are also associated with a decrease in the average cost per test and decreases in the average cost per diagnosis. However, this literature also identified several issues that need exploration with priority populations (Spence et al., 2020). Several studies identified concerns relating to test accuracy, and concerns about lack of communication with practitioners (particularly when receiving results). There was a lack of consensus on the preferred mode for receiving results (test vs phone call), although convenience and confidentiality were strong influencing factors. The extent to which cost would be a significant barrier for each priority population, and the extent to which they are amenable to a Medicare-based service (which requires them to provide personal identification at the

time of assessment). For the purposes of this report, we refer to online and/self-collection testing model put forth by MH (see Figure 1 Currently proposed online testing model).

1.2.1 Study objectives

The initial primary objective of the study was to contribute to informing the development of an online STI/BBV testing model for priority populations residing in NSW. The initial secondary objective of the study was to identify the key elements that would facilitate increased acceptability, accessibility, and use of an online testing platform, and its promotion.

To note: The primary and secondary objectives were developed by MH at the research design phase. In the period between data collection and the publication of this report, the online testing landscape has changed and, accordingly, data was then reinterpreted to emphasise the secondary objective.

This report's primary objective was to identify the key elements that would facilitate increased acceptability, accessibility, and use of an online testing platform, and its promotion.

2. Methods

This study had been designed by MH to specifically address the perspective of diverse priority populations within NSW on the key questions regarding acceptability, what elements need to be in place, and other enablers.

While some of the perspectives are shared across priority populations, others are unique to specific priority populations. Conducting population-specific groups allowed analysis of patterns specific to each group, to identify whether some populations find a model more acceptable than others, and which elements and enablers need to be in place to maximise access for each priority population. In addition, conducting population-specific groups increase participants' comfort and safety.

The study employed a convenience sampling approach, with targeted recruitment strategies for each priority population. Recruitment, screening, consent, group facilitation, and audio and chat recordings were completed by Lisa Ryan from Hecate Consulting.

Nine focus groups were conducted representing priority populations in NSW:

- Aboriginal and Torres Strait Islander women
- Gay, bisexual and other men who have sex with men
- Overseas born people who arrived in Australia in the past four years
- People from culturally and linguistically diverse backgrounds
- People in regional, rural and remote locations
- People who inject drugs
- Sex workers
- Sexually active young people under 30 years of age
- Trans and gender diverse people

Two proposed focus groups did not proceed because recruitment from these populations was not successful (Aboriginal and Torres Strait Islander men and Aboriginal and Torres Strait Islander trans and gender diverse people).

Recruitment for the project was conducted primarily through partners who promoted the call for focus group participation via their existing networks and using their social media and other communication platforms. Recruitment occurred through social media (including through existing health promotion campaigns) and word of mouth (through key community and population specific organisations). Potential participants were invited to scan a QR code that directed them to the MoH site to register their interest and were then contacted directly to determine their eligibility. As some participants were eligible multiple population groups, participants could select which focus group they wished to join. As a number of priority populations were recruited through health organisations, such as local health districts staff, Aboriginal Community Controlled Health Services, and Multicultural Health Service Coordinators, this resulted in a participant cohort with a high degree of sexual health literacy, preexisting connections with sexual health services (either through employment or engagement with sexual health testing), and high levels of STI/BBV testing (see Limitations of the study).

Informed consent was collected through a signed copy of the consent form prior to commencement of the focus group via email. Participants were then asked to verbally confirm their willingness to participate at the commencement of the focus group. Participants were reminded that they are unable to withdraw once the focus group has been completed, as it will not be possible to identify and remove their contribution. All focus group participants received a \$100 open visa card for reimbursement of their time and inconvenience only. The reimbursement rate was based on the national minimum wage rate of \$21.38 per hour x 2 (upper limit) and rounded up to \$50.00 per hour to offset any unidentified costs and/or undocumented expenses. The reimbursement rate was recommended by the Project Aboriginal advisory group.

All data generated was analysed using thematic analysis (Braun & Clarke, 2012), and coded deductively in response to the study objectives. NSW MoH arranged and received ethics approval to collect data (approval 2023/ETH00907). An amendment was submitted in April 2024 to enable CSRH researchers to analyse the focus group data.

3. Findings

Nine focus groups were conducted with priority populations in NSW (see Appendix A).

3.1 Key elements of an online testing platform

This section documents the general perceptions of what a successful online testing platform was perceived to be among focus group participants. Questions were asked in the focus groups as to what elements were seen as key in an online testing platform; whether platforms should be targeted to each priority population or a single, universal platform for everyone to use; and how such a platform could be promoted to each priority population to encourage use.

3.1.1 Convenience, cost and confidentiality

Convenience, cost, and confidentiality were key factors for participants across the focus groups – the same key enablers that prompted STI and/or BBV testing more generally – which suggests that factors associated with acceptability, accessibility and use were linked and self-reinforcing. Generally, reception to an online testing platform was positive, provided it was low-cost (if not free or wholly rebateable), and reputable (either co-badged with NSW Health, community organisations or other known non-government organisations; there was less confidence in for-profit or private organisations). However, the balance of or priority placed between the three common factors – cost, convenience, and confidentiality – differed between priority populations.

For young people, convenience was cited as a main factor in accessibility and acceptability of online testing platforms:

Because I struggle to organise my life and trying to get a GP appointment is like a task and a chore that I don't want to do and I'm going to put it off until things get worse. So, yeah, I'm all about convenience. If I could Uber Eats-style my STI and pee in a jar and then send it off in the mail or whatever (sexually active young people focus group).

Online testing or telephone referral services were already accessed by some MSM and sex workers based on convenience and accessibility. Yet, online testing where “only a specific group of pathologists can be used with it” (sex worker focus group) were barriers, as they may not display knowledge of, or competency around, their particular health needs, and were considered inconvenient:

The pathologist that I saw, they had no idea what testing for a sex worker looked like, asked me so many questions about why I'm doing it so regularly, and then sent me with a home testing kit and wouldn't let me use it at the practice. [...] I had to like take the testing kit, take the bus home, test at home, take my testing kit back to the pathologist. [...] and I couldn't ask them any follow-ups, you know, about other concerns I had with my contraceptives and stuff. It was just like the worst. So, it's very convenient booking in with an online system like that, but then you need to be able to access practitioners that know what they're doing and have been educated for our

specific needs (sex worker focus group).

Instead, cost was considered a higher priority for those participants who did not hold concerns around confidentiality:

That's why I go to the sexual health clinics because I don't want to pay to go see the doctor, then pay again to get the results. It's just too much money (men who have sex with men focus group).

All participants in the focus groups agreed that if one platform was cheaper or free, then they would opt to use the free service over a user pays model. If the service was not free, other participants pointed to a need to balance cost against convenience:

I think for me it would really depend on the cost, like how much the cost is versus like how much more of a convenience it is. Like that's the sort of balance, right? Like if I'm spending like an hour or two hours at a free sexual health testing, but the online version is only \$20 and it saves me so much more time, I probably would pay the \$20 (sex worker focus group).

However, many participants expressed concerns that, by not providing this service for free, it could erode trust in NSW Health that had been built over time:

I personally would look for services that are still free. It's something that I've been accessing for many years and I think it will be a real shame to lose that. It's something that we're very fortunate to have here, that high-risk populations have been offered these services free of service. So, yeah, I think it would be a shame if it moves to a paid model (men who have sex with men focus group).

Providing free health care was seen as promoting healthcare equity and was necessary to maintain population level health:

There'd be a lot of reluctance there and that would only lead to, you know, further potential transmission, you know, if people aren't aware. So, you want things to be identified quickly and easily and you want people to engage without having to double, you know, second guess and without having to do their figures [work out if they could pay for the service at that time of need], you know? (people who inject drugs focus group).

As such, there was strong consensus that STI and/or BBV testing should be free for everyone:

Look, I probably wouldn't want to pay just because I know that STI testing is meant to be free (regional, rural and remotely located focus group).

Conversely, among other focus groups, if the online testing model was not promoted as free, then it was anticipated to have low use among priority populations:

You would've lost more than half of the people who even thought about it, just by saying it's not free (Aboriginal and Torres Strait Island women's focus group).

Indeed, incentivised participation was suggested for Aboriginal and Torres Strait Islander peoples. For

people who currently pay an out-of-pocket expense with their GPs (i.e., not bulkbilling GPs) and who speculated that if the cost was the same or lower than co-payments currently experienced, then online testing would have limited attraction for them.

The majority of participants recognise the current model healthcare provision by NSW Health or the legitimacy of websites ending with 'gov.au'. This also led to increased legitimacy and acceptability of the service model offered:

I might just chip in and say I think when I think of New South Wales Health, I think of a whole suite of services. So, when I think about this, this is just an additional service, so it makes sense to me rather than trying to implement an external organisation and then trying to build that affiliation there. It's like a new concept rather than just sort of having to already create it and adding one more element (sexually active young people focus group).

This extended to a sense of accountability evident in NSW Health; conversely private or for-profit organisations were seen as less accountable:

I'd rather go with New South Wales Health. They're a larger organisation, they're more accountable, results are easier to chase up (sex worker focus group).

Yet, prior negative experiences with NSW health-provided services eroded trust, however mostly related to quality and cost of health care more generally:

So, I am extremely sceptical in the way that like a lot of the government funded stuff has been run, especially because in the last couple of years, the quality of it, in the last 10 years, the quality of public health access has gone extremely downhill and they are making us pay for it, and it's no longer a free service (sex worker focus group).

While this quote is made in reference to the public health system more broadly, rather than on PFSHS specifically, it does point to the perception that this participant holds that PFSHS may charge for services in the future, which would further erode trust in NSW health-provided services regardless of whether they remain free to use or not.

MSM were less likely to cite the need for confidentiality for themselves (though, speculated that this might be of a higher priority for heterosexual-identified MSM as noted above):

I think it's like the community itself, like if you're an out gay man, you know, it's kind of like given that we kind of have to get tested just to get everyone safe (men who have sex with men focus group).

Many participants cited other population groups who may require higher levels of confidentiality than themselves (e.g., people in intimate partner or family violence situations, where access to medical records or mail being monitored may put them in further danger). Established and reputable healthcare systems such as PFSHS and GPs who had large priority population patient cohorts were generally perceived to have the existing infrastructure to ensure privacy of their patients. As such, confidentiality was assumed to be linked to appropriate infrastructure to guarantee privacy:

Privacy of my data. If anything is being recorded, obviously it will be, I just need to

know that it won't be distributed anywhere else, and my data is very secure (sexually active young people focus group).

This was, however, perceived to be an issue to ensure for regionally or rurally based services, where staffing shortages and a lack of training and resources could influence how competent online testing platforms could function effectively.

In contrast, confidentiality was a higher priority among regional and rural women, Aboriginal and Torres Strait Islander women, and both CALD groups (though, cost was often equally weighed). A minimum of information should be requested from Aboriginal and Torres Strait Islander peoples as “the more you ask for...the less trusting they're going to be”. Instead, a name, date of birth and phone or email were sufficient to engage this priority population; providing an address was perceived to be something that Aboriginal and Torres Strait Islander people would prefer to avoid. Avoiding the need to engage face-to-face with healthcare workers was perceived to be prioritised among people who inject drugs:

But for a lot of people too, that kind of I think the degree of, you know, distance and anonymity, you know, so to speak, not having to deal with real people for people with anxiety issues or people with, you know, trauma, you know, traumatic histories of interactions with healthcare, I think it's fantastic, you know? (people who inject drugs focus group).

Providing a Medicare number (or Overseas Medical Health Cover in the case of international students) was generally acceptable, especially if it meant that the online testing model was free or wholly rebateable (though it was noted that some Aboriginal and Torres Strait Islander people may not know their Medicare details, some CALD participants speculated that some people within migrant communities would be uncomfortable, and sex workers who were used to non-Medicare attached sexual health services):

I guess I would be willing to give my details if it was solely for the purpose of getting it like bulkbilled. Like if it was only tied to the sense of it running through the system, so it's like covered. [...] It's like, okay, you need to enter this information for purposes of bulkbilling and like payment, but not like, you know, your identity per se for you as a person, if that makes sense (trans and gender diverse people focus group).

Having the option to claim back later through Medicare (i.e., not a requirement to input into the online platform) was suggested as a way to alleviate concerns about linking medical records with STI/BBV results. For others, such as regional, rural or remotely located women, this was a familiar requirement that aligned with their experiences of other healthcare provision. It was speculated, however, that there would be other populations who may not feel comfortable providing Medicare details (e.g. small town 'anti-vaxxers', or people without Medicare or who are not comfortable providing Medicare or other identifying details if on temporary/unstable visa arrangements). In many instances, providing details to ensure a free service was assumed, as was not seen to be too different from other models for healthcare provision (e.g., having “somewhere you can click on the website that says how we use your data” (MSM). Indeed, if the requirement to provide name, date of birth and Medicare details was only required to ensure the service was free, and not used for any other reason, then there was general acceptance among many in the focus groups:

If I really want to look like at the technical specifics about how they're going to store my information, for how long, and what kind of methods, I think a link would suffice (culturally and linguistically diverse people).

Accordingly having information upfront and visible about privacy policies was perceived to be important, though at a level already currently used, as this was seen to be sufficient. This included the option of opting out to have medical records shared with other services, similar to My Health Record. It was also recommended that information pertaining to why this was needed would also assist in establishing trust and comfort in providing these details.

A minority of participants expressed discomfort with an organisation with religious affiliations or if a for-profit organisation used their data in any other ways (such as for insurance coverage). Trans and gender diverse people suggested that additional affiliations with known representative organisations or promoted through existing clinics that people access would add to the service's acceptability:

I think some sort of endorsement by ACON or, you know, putting it on sort of the TransHub website (trans and gender diverse people focus group).

So, I guess, like getting endorsement by like clinics is like a really important thing (trans and gender diverse people focus group).

As such, having peer-identified models was important for Aboriginal and Torres Strait Islander peoples, MSM, sex workers, trans and gender diverse people, and people who use drugs especially:

I would like to know too that those people speak to me in a truly sincere and un-judgemental way, you know. So, once again, that's where maybe, you know, peer identification comes in, but also, I suppose, you know, like community and subculture identification. [...] I suppose, there's a small confidence and security that, you know, feeling, I suppose, of cultural solidarity, identity, solidarity, you know, connection can provide (people who inject drugs focus group).

3.1.2 Preferences for targeted or universal platforms

Participants across the focus groups preferred having a platform that all people could access, and which met their needs in terms of preferences for interactivity and peer involvement, and balanced cost and convenience, rather than have multiple ones targeted exclusively towards each priority population. However, the universal model would need to display sexual health competency, use inclusive language, and visibly represent diversity in any imagery used:

I wouldn't have a problem with that [universal platform] at all. Yeah. I just like the idea that they're specifically trained in sexual health. So, I would feel, you know, obviously confident in their abilities and also in their, yeah, just the attitude, you know. I wouldn't feel judged or anything (regional, rural and remotely located focus group).

If criteria for inclusiveness was met, a universal platform was seen to be more preferable for people who might share characteristics across priority populations, rather than requiring people to select the most appropriate one for them (i.e. a platform that encapsulates intersectionality):

And I might say as well that it feels like a more inclusive and trustworthy service when it's not changing like not categorising and separating things too much. Also, the specific populations that use STIs and BBV tests, not just young, like they're also older, and especially from the LGBTQIA+ community, they're also older, so it should be like a shared all in one platform (sexually active young people focus group).

Yeah. I fall into a few different groups as I mentioned when I applied for this. So, having something that covered, you know, care for trans people, care for people in regional areas and sex workers would be pretty ideal because I would be able, you know, to be included across the board on those things (sex worker focus group).

As such, targeted services were seen as unnecessary. For members of especially marginalised priority populations with experiences of lack of access to targeted services, having a universal platform reduced the risk that certain targeted platforms may be decommissioned or unavailable during times of scarce resourcing:

I think as long as they can support it and they have the knowledge and the ability to support trans people, awesome. I think it would also just partially maybe help actually get rid of some of the problems that have come up before. Like it's super easy for trans services to sometimes go under the radar and get cancelled during COVID, and if it's a whole of New South Wales Health service, it's a lot harder to just get cancelled during COVID 2 (trans and gender diverse people focus group).

Conversely, having targeted platforms were seen as potentially introducing new barriers to testing. The perception of differential treatment could be introduced with targeted platforms:

I think as a whole group would be better because if you are separating them, maybe there'll be like quota or something and different treatments. Yeah. So, as a whole, there will be like standard treatment, standard precautions (overseas born people who arrived in Australia in the past four years focus group).

Indeed, having targeted platforms may introduce new forms of stigma and discrimination. For example, having a sex worker specific platform may out people who engage in sex work, and may undermine the intersectionality of priority populations:

Yeah, I think that's good because then it's not saying you could only be a sex worker if you're using this service. So, then you're not outing yourself as a sex worker. So, yeah. So, I think that would be good (sex worker focus group).

However, many participants strongly emphasised cited the need to have appropriate co-design principles in place when developing a new platform, or to ensure suitability for priority populations through pilot testing and evaluation, and that robust and competent referral pathways were in place if needed.

The only focus group that significantly departed from the preference for a universal platform was Aboriginal and Torres Strait Islander women, who were largely comprised of healthcare workers:

I think that an online testing is extremely white, and I think you are ready to assume that people can read and have access to the internet. I think it's not very culturally sensitive. Even if you were to throw some artwork on it, I don't think it's culturally

appropriate at all. I think it's very inappropriate. I think if you want to disguise the online testing and if you wanted it to be something that is culturally safe, you need to employ somebody (Aboriginal and Torres Strait Island women's focus group).

Despite being an online platform, participants in this group agreed that it was important to have a peer-identified healthcare worker available to engage with potential users:

I guess, the only way it would kind of be beneficial for the patients, if they were to come into a clinic and sit in with an Aboriginal identified worker [...] to sit down and teach them or get it all up ready for them on the computer and just walk them through it, I guess, in a way. Then it's in a private like consult room (Aboriginal and Torres Strait Island women's focus group).

3.1.3 Digital and health literacy

Tech and digital literacy were also key factors in the acceptability, accessibility and use of an online testing platform. From the majority of focus groups, anticipated lack of technology resources necessary to access the platform (internet access, phone signal, phone data) were all cited as potentially barriers for, especially, rural and remote users and for Aboriginal and Torres Strait peoples. Sex workers also anticipated barriers to access from people who are experiencing homelessness, which they perceived was common within their communities. In this case, having options to access online testing was important:

I've had really significant broadband NBN issues and that sort of thing. Maybe offering a phone call rather than just a telehealth if that's the issue, but I've had no NBN (regional, rural and remotely located focus group).

While such barriers to access were commonly speculated among all participants, for the regional, rural and remote NSW focus group, workarounds to technological access were considered accessible and acceptable (such as accessing library resources, private rooms at GPs for telehealth appointments). As such, while technological literacy was uniformly speculated as a potential issue for others, many people in the focus groups did not cite technology accessibility as an issue for them personally. Most participants perceived that smart phone access would be sufficient:

I think most students or international people will have their mobile data. I don't think it will be a problem and I don't think this process will take that much data (overseas born people who arrived in Australia in the past four years focus group).

More importantly, participants held concerns for the health literacy required to use an online testing platform effectively:

I think it would be an issue and even just the understanding of how to use it, like just to fill out that form (regional, rural and remotely located focus group).

This suggests the need for an easy-to-navigate platform (“to not go down rabbit holes”), and clear, easy read instructions, and, as in one suggestion, an induction or overview introduction to the platform on first access. This was seen to generate trust and reassurance in the model. For Aboriginal and Torres Strait Islander peoples, there was strong encouragement for peer navigators:

No, they wouldn't do it, and I think it's because it's online and no one's walking them through (Aboriginal and Torres Strait Island women's focus group).

3.1.4 Promotion of an online testing model

Participants of each priority population focus group were asked how an online testing model would be most effectively promoted among their communities to lead to increased acceptability and use of the service. All focus groups suggested social media, the use of QR codes, having the service promoted through Google search engines and on NSW Health websites.

Among Aboriginal and Torres Strait Islander women, posters put up in communal areas, social media and embedded in other successful campaigns, such as Play Safe and Take Blaktion, were all suggested. Echoing the need for peer leadership in other health promotion models targeted this priority population, using specific individuals who held influence in communities to promote the service (e.g., through television advertisements) or employing dedicated staff to provide outreach (to communities, but also to visit established men's and women's groups) was needed:

We've got all these different Aboriginal organisations ... We can get someone in there talking to mob. That is, for me, the best way to change and it's the most cost effective personally (Aboriginal and Torres Strait Island women's focus group).

This included hosting events at local medical centres, making promotions culturally resonant, and having peer-identified workers visible. This echoed suggestions from the CALD groups, including community centres, cultural festivals, and refugee case managers. Likewise for young people, having legitimacy of the service established was as important as widespread promotional reach ("ACON website for cred and Instagram for reach").

Among MSM, sex workers, and people who inject drugs, promoting the services through community health organisations (ACON, SWOP, NUAA, Kirkton Road Centre) was perceived to be the most effective. For MSM in particular, promoting within sex on premises venues was suggested, as well as online dating apps (i.e., not just those targeted to MSM but other apps that heterosexual-identified MSM and sexually active young people use) was encouraged, and should have strong wording around the need for regular testing.

Advertisements in public places was also recommended among rural, regional and remotely located women, such as the back of toilet doors in shopping centres, as well as online promotions that are locally specific and through local health district newsletters. To reach young people, promotions at schools, TAFE and University campuses were all suggested, though young people themselves in their focus group also suggested posters in GP clinics, and people who inject drugs suggested chemists.

Finally having promotions in languages other than English was necessary to raise awareness of the service for acceptability and accessibility.

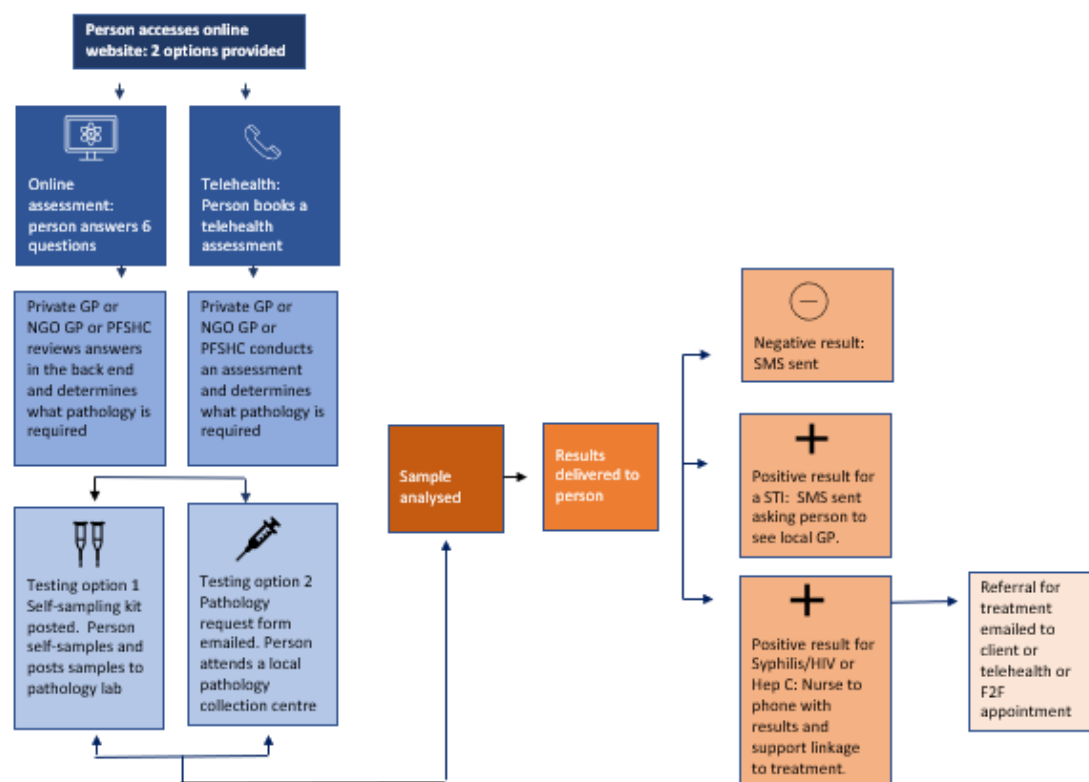
3.2 Proposed online testing model

Online testing models incorporating various options and processes for assessment, testing, and result notifications were developed by MH based on incorporating elements of existing testing frameworks available in Australia and internationally. The subsequently developed model was created in response to recommendations from the Project Advisory Group that it would be more beneficial to seek feedback on a visual aid comprised of a composite of existing testing models rather than asking questions of abstracted ideas in general. As such, presenting focus groups with a visual representation of these models and guiding them through each process was seen to facilitate more detailed and formative feedback on each element.

To note, focus group participants were also asked about their current testing sites and patterns of testing (detailed data not reported here as it was general, and not specific to the testing model put forward). General enablers to STI/BBV testing included the need for confidentiality, perception of specialisation and expertise, and convenience and accessibility. General barriers to STI/BBV testing included judgemental or stigmatising attitudes in healthcare, inconsistency of service quality and delivery, and cost and inconvenience. Many of these general enablers and barriers to STI/BBV testing are applicable to any online testing model, including the one proposed here. An online testing model that does not account for these broader enablers and barriers is unlikely to be successful.

A proposed model was put to each focus group (see Figure 1).

Figure 1 Currently proposed online testing model

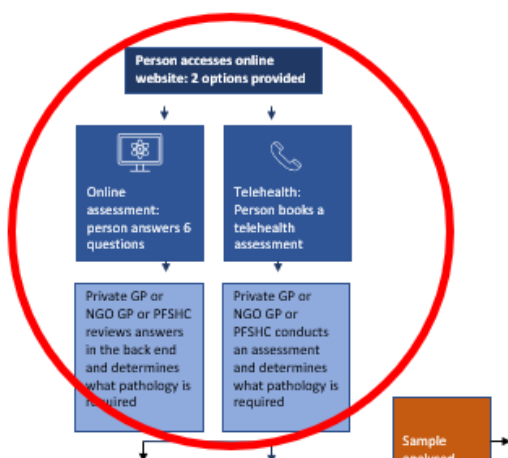


Focus group participants were then walked through the various components of the proposed online testing model with questions related to its separate elements (assessment, testing, notification) posed for discussion (see figures 2, 3 and 4).

3.2.1 Assessment

Two options were presented for users to access the online testing model: an online assessment platform or a telehealth appointment. Regardless of the option, the assessment would require answering a number of questions to ascertain which test is required, and that those responses to the questions be assessed by one of: the users' local GP, a centralised bank of GPs, or a SHC.

Figure 2 Proposed online testing model broken down into elements - assessment



Overwhelmingly, participants cited the need for both options to access the online testing platform: an online assessment or a telehealth appointment. There were notable pros and cons associated with each, as well as disparity in preferences among those who would prefer each option.

While an online platform gave those who wished to undergo STI and/or BBV testing without the need for engaging with healthcare workers directly, participants in injecting drug use, both CALD and the MSM groups also spoke to the need to have the option to talk to a person, and people could be talked through the process or any worries and concerns that they might have with their health:

Well, I think some people would be able to do, filling in their ... like doing it online quite easily, but then it depends, like if the questions are a bit confronting or a bit hard to answer, it might be easy to talk it rather than actually have to type it, you know? (people who inject drugs focus group).

I would probably use both, but if it's just a regular check every three months, I would just do the online form. If I have symptoms of something, maybe I would just prefer to speak to someone and then do it that way. So, I'll access both services equally (men who have sex with men focus group).

This was necessary beyond a person's level of comfort, as there were perceptions that people might not know what symptoms manifest with STIs and/or BBVs or what behaviours may have put them at risk of STI/BBV acquisition; this was considered in terms of health literacy equity. Telehealth was also

preferred among the Aboriginal and Torres Strait Islander women's focus group (though again, speculating on the preferences of their communities rather than themselves):

If you get a teenager who's, you know, just had sex for the first time and doesn't want to tell anybody, if you give her a phone number and say, "If you're worried, call this phone number and we can get you tested," she will pick up that phone and call (Aboriginal and Torres Strait Island women's focus group).

But for an older person or a person who doesn't have access to internet, whether they're old or young or whatever, I think a telehealth in a consult room with an AHP or AHW assisting them with the internet and everything like that (Aboriginal and Torres Strait Island women's focus group).

In part, this preference was due to the perception that telehealth could offer more holistic, wrap around services and opportunistic initiation of enhanced testing. Older people were perceived to have a lack of digital literacy required to use the online testing model effectively, and would be better suited for a telehealth appointment (though this was speculation only as no one cited this as a barrier for themselves):

I think the age, based on the age, I think. Yeah, the technology. They must have some difficulties with technology to access the technology, not only the language. They might know English, but not the technology (culturally and linguistically diverse people).

For people who speak languages other than English, the need to have an interpreter available would result in longer wait times. Indeed, long wait times to secure or to wait for an available healthcare worker to do the telehealth assessment were clearly articulated as deterrents among the focus groups. This was exacerbated for regional, rural and remote people who may have telephone connectivity issues, and the online platform would allow them to quickly respond to the assessment questions in times of limited connection.

An online platform offers users more flexibility, which is important for people who risk missing work to attend scheduled telehealth appointments (e.g. for sex workers who may have clients at short notice, CALD people on casual work hours or without paid leave). Indeed, MSM who currently used telehealth for appointments queried the difference between their regular practice and the proposed model, if a telehealth assessment was the only option:

I mean I'm already comfortable doing the testing because I'm already doing it regularly or even more regularly than what's usually allowed. So, for me, I'm coming from a position of, you know, accessibility and efficiency. If I had to go through the same, you know, song and dance, what stops me from actually just sticking with what I have at the moment? (men who have sex with men focus group).

Likewise, being able to pause the assessment process and come back to it later if work or other things come up unexpectedly was preferred, though it was recognised that this would necessitate some kind of online portal, with login credentials, that can store previously inputted information. This was also a preference for participants who like to minimise human interactions or reduce the risk of human assumptions or who have issues with internet or phone reliability. There was considerable

enthusiasm among trans and gender diverse participants on the possibility of customisation if using an online platform (i.e., using a name that differs from the one on Medicare, option to record pronouns, and options to use a different word to refer to body parts, which can be saved and used in future interactions). Having further automation (i.e. a testing kit sent out every three months) was seen as more efficient for MSM who regularly undergo testing. If online, a referral pathway was recommended should users have additional concerns, with the option to see or speak to a person despite starting the process on the online platform, culturally safe options referral options in case of distress (QLife, ACCHOs, etc), or to revert to telehealth if needed. Overwhelmingly, an online assessment was considered faster, more efficient, and more convenient than telehealth appointments.

No participants cited major concerns with the six questions posed as part of the assessment, either online or via telehealth. However, participants believed it was important to impart information as to why those questions were asked, and what the responses might indicate in terms of testing requirements, especially if accessing an online platform. For overseas born CALD participants and regional, rural or remote women, having tick boxes rather than open text responses was preferred. An online assessment (as opposed to a telehealth appointment) allows people who speak languages other than English the opportunity to use online translation services, or that the online platform could have languages other than English of the users' choice. This was also the preferred option among overseas born CALD participants who may otherwise be uncomfortable answering questions from a person:

For me, online assessment will be better because when you're on telephone, it's like you're talking to a real person. Maybe you feel more at ease when you do the online assessments and maybe more, the answers might be more, how do you say, true? (overseas born people who arrived in Australia in the past four years focus group).

Concerns over accurate responses to sensitive questions such as number of sexual partners was expressed among both CALD focus groups, suggestive of the need for appropriate phrasing of the assessment questions:

I think I don't want to be judged. So, I'm just here to get some help and if someone's asking me or blaming me like, "Oh, you had like STI. How many person did you have...?" Yeah. That's kind of blaming me for my disease (culturally and linguistically diverse people).

There was an additional perception that an online system would be quicker as it would automatically progress, compared to wait time to secure a telehealth appointment and the labour required to process responses following a telehealth appointment. From experience, many participants expressed concerns over long wait times associated with telehealth:

If I was put on hold for a long time, I would hang up and forget about it and probably not remember for months. Maybe if they have one of those callback services where they'll call you back once it's your turn in the queue as well (sexually active young people focus group).

Having the assessment results returned quickly was also a factor perceived to be associated with an

online system:

Because if someone's got to wait a day for that answer, they've lost interest already (Aboriginal and Torres Strait Island women's focus group).

Equally, if undertaking a telehealth appointment, it is important that the person asking the questions has adequate training in priority populations unique needs, and that questions can be sensitively and appropriately phrased so as to be perceived as "screening" rather than "prying" (sex worker focus group). For sex workers, especially, it is important that disclosure is a "choice" for sex workers to make, not a requirement of the model:

So, for me personally, if the options for online testing was to disclose that I'm a sex worker and have it attached to my like Medicare file or whatever, I wouldn't do that, and if it was between paying for online testing or going into a free anonymous clinic, I would still continue to go to a free anonymous clinic (sex worker focus group).

That is, responses to the questions will need to be de-linked from Medicare and other electronic health records. This is especially relevant for people who undergo regular STI and/or BBV testing, in which the frequency of testing may indicate sex worker status.

Assessments carried out by SHCs were preferable to a user's local GP for reasons that echo preferences in broader testing sites and practices - as long as standard confidentiality and privacy mechanisms were in place: SHS were perceived to hold more expertise, were less judgemental, and were more competent with priority populations than GPs. MSM also speculated if the assessment could be done with artificial intelligence (i.e., "follow an algorithm"). SHCs were also considered to be better placed to provide other services, rather than a GP needing to refer patients on (e.g. asking about PrEP use), given "they're much more familiar with those conversations and asking about [sexual health and harm reduction]" (people who inject drugs focus group):

And the range of sub-services that can be provided within that one thing, if it's properly fitted out, as opposed to kind of going to a GP, who then, you know, has to either give you a referral to somewhere else and you deal with another specialist, you know what I mean? (people who inject drugs focus group).

If participants wanted to see their GP, they would opt for that rather than access their GP through a separate process associated with the online testing model:

If I wanted to go to my GP, I'd go to my GP, you know? I don't want my GP reviewing it in a small town really (regional, rural and remotely located focus group).

However, those fewer participants with good relationships with their local GPs prefer to have the assessment conducted by that GP, especially if any costs associated are bulkbilled. There was some resistance to having an unfamiliar GP who may be local to the area to do the assessment as they are unlikely to hold the relevant expertise or have had undergone appropriate training. Having options to nominate as to who would perform the assessment was favoured over only having one option, though generally PFSHS were preferred if only one site can be accommodated. There was a minority preference that personal or identifying information about users would not be linked with the assessment responses, but the majority of responses indicated that as long as the assessment was

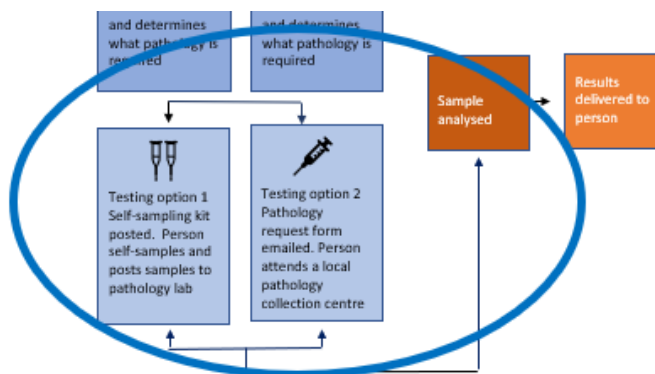
conducted by someone with expertise and professionalism, then there are no major concerns with confidentiality:

As long as they've done their trans training, they're sensitive and they can look at results impartially, no matter who they're looking at, on the piece of paper, they have X disease, deal with it. It doesn't need to be anyone in particular, just as long as they can do their job impartially and do it well (trans and gender diverse people focus group).

3.2.2 Testing and analysis

Two testing options were presented to participants: to have a self-sampling kit posted to a nominated postal address, or a pathology form to be emailed or texted to the user to attend a local pathology collection centre.

Figure 3 Proposed online testing model broken down into elements – testing and analysis



Convenience, speed, and accuracy were the main reasons on which participants based their preferences. Perceptions on the convenience, speed and accuracy associated with each option was mixed, and, like the assessment phase, there were preferences expressed for both options to be available if possible. One recommendation was to allow first-time users to be coached at pathology collection centres, with self-sampling kits then subsequently posted.

Convenience was cited as a reason for preferring a self-sampling kit, as it was perceived to be a new process that could sidestep the usual process of seeing a GP and then being referred to a pathology collection centre:

I personally would prefer testing option one because what's the point of doing all the other bits if I'm then going to have to get to a pathology clinic, right? That's a no-brainer for me. Yeah. So, I would prefer to go to a GP and at least be able to talk to them face-to-face and have all my queries answered (Aboriginal and Torres Strait Island women's focus group).

Indeed, the pathology collection centre option was not seen as any different to current processes and so offered less convenience – or at least the same amount that participants were currently used to. Accordingly, if there was not a higher level of convenience associated with either options, then some participants who had easy and free access to STI and/or BBV testing currently were not likely to use the proposed model at all. Online assessment followed by a self-sampling kit was the “dream” for

some young people, provided that the instructions were clear and easy to follow, and also allowed people with the need for flexibility in their work hours (e.g. sex workers, CALD people on casual or unfunded leave employment) to do at a time convenient to them. For some participants, the convenience of self-sampling at home was preferred over the process of providing samples at a pathology lab:

I mean for me, the self-sampling kit, if that's just gonorrhoea and Chlamydia, it's no different than what I do at the pathology because, you know, I do the swabs and pee in the pot and things like that. So, that's no different to me except that I can do it at home instead of like a dirty public toilet (men who have sex with men focus group).

For participants who held concerns over the cultural competency of pathology labs, the option to go to a pathology collection centre was fraught, especially among sex workers who believed that they would have to ensure that the pathology lab that they accessed was respectful to marginalised populations:

If I get a pathology request form, I need to then go do research and track down a pathologist that is going to, you know, treat me respectfully and I'll get the results that I need from them (sex worker focus group).

Accordingly, a variation of the model involved receiving a self-sampling kit by post, with the option of dropping it into a nearby pathology collection centre or posting it by mail.

For others where pathology labs were already in close proximity and for whom they have a regular routine of accessing, the pathology collection centre was perceived to be more convenient:

I definitely wouldn't use option one at all. I don't want the test to be posted to me and then doing the test and then posting it back. I think it's just too much work (men who have sex with men focus group).

Conversely, speed was perceived to be a deterring factor in self-sampling, given the necessity of using the postal system:

Option one [self-sampling], I could be waiting for the kit, it could be lost in the mail, and then I send it off, which is probably annoying to do and then all that waiting and stuff (men who have sex with men focus group).

For others, speed of testing could be related to the users' motivation to test. Among people who inject drugs or for other people with complex or busy lives, there were risks that the self-sampling would not be completed:

Testing option 2 [pathology] would be better for me, I think, only because I know what I'm like. With testing option 1 [self-sampling], I probably wouldn't do it (people who inject drugs focus group).

This was also linked to convenience, as participants speculated that accessing a pathology collection centre in regional or rural areas could be challenging, as the postal service was often closer. Accordingly, there was often a perception that speed and convenience may be in an inverse relation, and participants had to balance their relative importance:

I like this self-sampling one because I can do that whenever, you know. Like I can do it when I get home from work. I can send it off during a break, but the time factor would be a bit of an issue for me because I can see it would be a bit of a timely process. Like waiting for the kit, doing it, sending it back, waiting for results (regional, rural and remotely located focus group).

I'm a bit torn really. Yeah. I'm kind of, because, you know, self-testing, you can do at home, you know, whereas you have to wait for the thing to get to you before you can actually go and see the pathology. Same with if you're doing the self-testing, you have to wait for it to come to your home to do it, but the pathology, it's like one extra step you have to do. I don't know. I'm torn. I really am actually torn (people who inject drugs focus group).

Australia Post was not considered a reliable service by most.

Accuracy was also a high consideration for many participants. First, there were queries around whether users could self-test accurately, given multiple testing needs and modes of testing (urine, swab, dried blood spot), though the perception of difficulty was minimised when clarified that a full blood draw was not required:

But if they said, "Well, you need the whole kit and caboodle, you know. You need this, this and this and this, and there's going to be like 10 tests," then I'd be like, "Okay, send me that pathology form or email me that pathology form and I'll go to the pathology unit" (Aboriginal and Torres Strait Island women's focus group).

Even myself, like sometimes I don't have enough dexterity in my fingers and even the confidence to do the sample myself (culturally and linguistically diverse people).

There were also concerns around the accuracy of self-sampling kits compared to pathology collected specimens, which may also reflect a lack of familiarity with the self-sampling technology, as well as the need to preserve samples long enough to make the postal journey:

Apart from COVID testing, I barely used self-sampling kit. So, you know, when it comes to blood sampling and it's just one drop, I'm still like probably not extremely comfortable with that. I would also be a bit cautious about sensitivity of self-sampling compared to traditional way because, yeah, I presume it's because it's more convenient. Let's say, the quality or the sensitivity test may not be as good as I would prefer to have (men who have sex with men focus group).

The potential for human error in self-sampling kits was a repeated concern across the majority of focus groups. Accuracy was also a factor when considering the specific instructions for particular tests or if confirmatory tests were required following self-sampling (which again reflects the higher rate of STI/BBV knowledge of this cohort in general):

Like technically I would sort of prefer to have a pathology person do my samples for me. You know, I'm a little bit queasy and I feel like some people who aren't experienced would have difficulty reading all the instructions about like first stream and all that sort of stuff, but then at the same time, I think that for Chlamydia, you're supposed to try and get that first drop in the morning, so having that there at home for the morning, the first morning pee, is really, really helpful (regional, rural and remotely

located focus group).

As with convenience and speed, speed and accuracy were perceived to require a balance of priorities:

For me, I am okay with both. So, if I want like faster results, I'll probably go for self-sampling kit, but if I want like more accurate results, maybe I'll go for option two (overseas born people who arrived in Australia in the past four years focus group).

Other minor considerations included a preference for self-sampling as stigma associated with sexual health may deter people from going to local pathology labs, especially voiced among Aboriginal and Torres Strait Islander peoples and people in regional, rural or remote locations. One perception was that self-sampling would work to reduce stigma associated with self-testing over repeated use and visible promotion, which would also work to instil or reflect a sense of agency over health:

It does give you back a sense of ownership over your body as well. You know, it gives you back a sense of ownership to be able to test yourself, you know. Not "Get yourself tested. Go see somebody to test you," but test yourself, check on yourself because, yeah, when I get the testing done, it's for myself and for my own health. So, you know, I should learn more about my body and how to test it and make sure that it's healthy, you know? (regional, rural and remotely located focus group).

The need for confidentiality in small towns or among migrant communities was also expressed as a reason for preferring self-sampling:

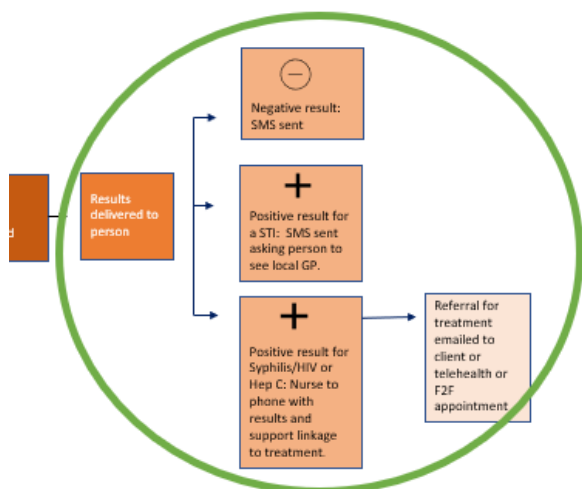
The whole pathology thing is a bit of a deterrent because, yeah, the pathology testing place is at the doctor surgery down the road and that's the whole factor that I'd be trying to avoid in the first place (regional, rural and remotely located focus group).

Yet, overseas borne CALD participants felt that a self-sampling kit posted to a home address was more of a risk in terms of confidentiality and privacy (likely due to shared housing arrangements common among students). Cost was also a repeated consideration, with the preference to have a bulkbilled system for all options. Trans and gender diverse people felt that the option of bulkbilling would be more feasible with a pathology collection centre.

3.2.3 Notification

Once the sample has been analysed (see above) and the result determined, there are three proposed approaches for notifying users of the online testing model. If the test result is negative, this result will be texted via SMS (or potentially emailed or prompting the user to log in to the portal if available). If the test result is positive for a non-notifiable STI, then a SMS (or potentially emailed or prompting the user to log in to the portal if available) will ask the user to access their local GP. If this test result is positive for a notifiable STI (syphilis) or BBV (HIV, HCV), a nurse from a SFSHS will call with the user with the result and link to treatment including any referrals required.

Figure 4 Proposed online testing model broken down into elements – notification



As with the other phases of the model, having options was preferable to only one option, which would better suit people’s personal preferences:

So, as part of the system, having the option, like the doctor surgery I go to has an option that you can allocate whether you get contacted by text message, whether you get contacted by phone call, whether you get contacted by email. It's not a one size fits all kind of thing (sex worker focus group).

SMS doesn't feel very private, and just having the option for different types of communication is really important for people, especially who are in unsafe situations. [...] So, just having alternative forms of contact and then even as well, if it is a positive result, if someone can't receive a phone call and it's not safe for them to do so, maybe alternatively having that result sent to their local GP or a safe person that they can refer their information to, preferably a health professional, I would say, and then that health professional can contact them (sexually active young people focus group).

By far, participants preferred to know if their tests were negative:

So, I like people to say if I've tested negative, I still like to be told of being tested negative because I like reassurance in things (sex worker focus group).

This was for reassurance, to alleviate worry or concern, and to ensure that results were known if required for work (e.g. sex workers). Relatedly, a proposed customisation of the online testing model would have the option to provide a testing certificate:

Like check a box, “Do you need a certificate about this appointment?” Regardless, like just whether it be specifically worded as if it's a sex work certificate, but like “Do you need evidence certification of having partaken in this?” Something like that. It's like a check box (sex worker focus group).

This was seen to be beneficial for other priority populations, such as sexually active young people or MSM who may wish to share results with potential sexual partners:

And like there might be, you know, younger people or people that say, “I want you to have a test before you sleep with me,” you know. So, it's not like, once again, it's just branded for sex workers, like other people might request those things (sex worker focus group).

Experienced and perceived stigma, confidentiality and convenience was a factor in the acceptability and feasibility of the proposed notification model. Among people who inject drugs or regionally, rural or remotely located people with a hypothetically positive result, convenience of follow through treatment was prioritised, with recommendations that a nurse practitioner calls who can prescribe treatment immediately (for example, eScript) for any STI result (notifiable or not) as this would minimise stigma:

I'd want the nurse to be able to prescribe the treatment. I don't want to have to go to another appointment (people who inject drugs focus group).

There were also recommendations that having the option of speaking to a healthcare provider for a positive non-notifiable STI would ease people's worry or concerns and give them the opportunity to ask questions. This is especially for people who may not be comfortable discussing sexual health with their GP, such as people from migrant communities or small towns:

Another thing is, second one, positive result for STI, SMS sent asking person to see local GP. People, yeah, will not feel comfortable to straightaway go to local GP (culturally and linguistically diverse people).

Similarly, these participants preferred that their positive results be sent to a SHC, rather than GP, which was similarly expressed by sex workers and trans and gender diverse people. This preference was based on the perception of expertise and professionalism of SHC over GPs as detailed in the above sections. There was also a perception that GPs will simply refer the user onto a SHC, which would necessitate further appointments and the risk of loss to follow up. As long as the person calling was sensitive, culturally appropriate and had undergone appropriate training, there were not strong preferences as to PFSHS, GP or NGO providing the notification:

I think in the eye of the consumer, all those options make little difference for them. Like private or public or NGO doctor, yeah, don't really make so much difference, I would say (culturally and linguistically diverse people).

I think the wording needs to be really careful if it's positive. I think I'd love to see some real cultural sensitivity and, yeah, I think that's the biggest thing that needs, like out of all of this, the biggest like clarification is when you have a positive result returned for anything, what's going to be the most supportive way to ease our minds and make us feel like we can just get some treatment and get some help, and especially if it is from a traumatic event. Yeah. I don't feel 100% comfortable with the wording or anything there on a positive result yet (regional, rural and remotely located focus group).

For people who speak languages other than English, having an interpreter available with phone calls advising of positive results was recommended. Confidentiality was also cited as a preference for SMS over phone calls, as people may not welcome or be prepared for phone calls:

I think for the phone call, it's a bit risky because some people might not accept like

stranger's calls (overseas born people who arrived in Australia in the past four years focus group).

I think that SMS is much better than a phone call. A phone call should be like private, like the nurse should ask if the person is comfortable to speak and only then to tell the results (overseas born people who arrived in Australia in the past four years focus group).

Do you just get like a phone call out of the blue because I don't answer my phone? Like it would be nice to get like a text, but you then have to like follow up with a phone call or something (trans and gender diverse people focus group).

Recommendations were also suggested among this group that emailed results or access via an online portal would be preferable to phone calls:

For me, I will not like to have SMS saying, "Okay, you're positive" or "Okay, you're negative." It's like I will just have, "Okay, your result is done. You can just check it out somewhere." It's like, example, I can go to the portal and check it. It is fine. If I want, I should be able to access it via all the places (overseas born people who arrived in Australia in the past four years focus group).

A SMS simply informing a user that they have tested positive for an undisclosed STI and that they need to make an appointment with their GP or local SHC was perceived to be "a massive shock", and MSM, for example, preferred to know what STI or BBV that they had tested positive for in the text content. Likewise, receiving a phone call to notify of a positive result without warning was also perceived as traumatic, with the preference to have a SMS system to provide notice of an incoming phone call with results. However, some participants from the regional, rural and remote locations preferred the simplicity and convenience of a text, especially as this process was familiar when receiving Covid test results.

For purposes of legitimacy and to minimise the potential for scammers to impersonate healthcare providers, preferences were expressed for the analysis and results to be synchronised through NSW health:

I thought it's like the results, the sample is analysed by GP or so, and the results will be synchronised to the NSW database and it's the NSW [Health] who will send us the results (overseas born people who arrived in Australia in the past four years focus group).

That is, for the results notification to come from NSW Health in some capacity. Having the results provided by a peer worker was also recommended, most notably among Aboriginal and Torres Strait Islander women, and people who inject drugs.

This may be determined at the assessment phase when responding to questions, so that an appropriate peer worker could be linked and be the person calling with results:

And, if anything, so those first questions that we had to answer in the beginning, that is probably maybe like where it would be useful to know, "Okay, I'm a drug injector. Make sure that, you know, if I get a positive result, that you have somebody who is going to

telehealth me who really can relate to that and who's going to be sympathetic to that” or “I'm a sex worker. I would like to, if I've got a positive result, I want to make sure that it's somebody who can relate to that calling me,” you know. “I'm Aboriginal.” Like that's where the first questions would make me feel more secure about answering them, knowing that if I get a positive test result, the person who supports me through it knows what I'm going through (regional, rural and remotely located focus group).

Dissent to the proposed online testing model was expressed unanimously among the Aboriginal and Torres Strait Islander women's focus group, echoing their concerns with the model in general. Aligning with MSM's feedback, receiving a SMS alerting users to a positive non-notifiable STI was perceived as confronting and anxiety producing, and instead, they proposed that any positive STI receive a phone call, similar to the model in operation for dried blood spot testing (of which this group were highly knowledgeable of):

That's exactly what I do for DBS. so, a negative result gets a text message, a positive result gets a phone call and we have a discussion about it. The one in the middle, I like for an STI, but I would also include an option that they might say, “Do you want to be contacted by a doctor or a nurse to discuss this further? Yes or no,” or “Y or N.” Do you know what I mean? I think giving them the option to go because you will get anxious people who go, “Holy crap! I'm positive. What do you mean?” And even though it says it's a simple antibiotic treatment, that doesn't matter. They're still going to get anxiety. Give them the option to talk to someone to de-escalate if need be (Aboriginal and Torres Strait Island women's focus group).

Continuity in care was also perceived to be important, with either the same healthcare provider that provided the assessment, received the results and communicated those results to the user. Strong encouragement was expressed for a peer-based model in which an Aboriginal healthcare provider brings the assessment criteria and self-sampling kit to the user's home and subsequently calls with the results. This was seen to alleviate stigma, minimise the risk of misinterpretation between an Aboriginal patient and a Caucasian GP, and provides for appropriate cultural safety.

4. Recommendations

4.1 Limitations of the study

There was a high degree of sexual health literacy across this cohort, with many participants working or training within the health system. The way partners promoted recruitment appears to have skewed participation toward individuals who are already engaged with health services, test frequently, or work in health-based organisations. People who disclosed that they were a healthcare worker in the focus groups tended to speak on behalf of their patients' needs and preferences, rather than their own. Accordingly, some perceptions or experiences may be assumed of, or speculated by, people without direct lived experience of the enablers and barriers for STI and/or BBV testing among priority populations.

4.2 Recommendations for an online testing model

- **Broader STI/BBV testing enablers and barriers need to be considered** for any online testing model, as omission of these considerations would mean that an online model would not have successful uptake. Gender enablers include the need for confidentiality, perception of specialisation and expertise, and convenience and accessibility. General barriers include judgemental or stigmatising attitudes in healthcare, inconsistency of service quality and delivery, and cost and inconvenience.
- **Having multiple options for assessment** that reflects the preference for choices that align with individual needs, whether it be an online assessment through a website, a telehealth assessment with a healthcare professional, or involvement of Aboriginal peer workers to navigate the assessment process. Having the option to convert to telehealth if an assessment is started on the website and/or the website containing a robust referral system should users have additional concerns (with the option to see or speak to a person) were strong suggested changes to the proposed model. Having the option of nominating who will perform the online or web-based assessment was suggested, such as local GP, local SHC, central PFSHS. Local GPs doing the telehealth assessment were not recommended as it did not differ from current testing sites and practices. Assessment questions on gender should also align with best practices containing multiple dropdowns and an open text option (i.e. ABS 2020 standards) and are not phrased as male/female/other.
- **Having multiple options for testing**, including self-collection and either posting the self-collected sample or dropping the sample into a local pathology site, receiving a pathology form to attend a pathology centre, or involvement of Aboriginal peer workers. Having the option to be coached in self-collection at a local pathology site for future self-collection independently was suggested. Local GPs doing the sample testing were not recommended.
- **Having multiple options to receive results**, such SMS, telephone, portal login, or involvement of peer workers. Specify the infection for a positive notification, even if not notifiable. Negative test results to also be notified.
- **Having multiple options for referral for treatment**, including email, telehealth, in person, or by

nurse practitioner prescribing via eScript.

- **Ensure confidentiality** by removing or minimising any perception that a users' data is not protected by providing reasons for why assessment questions are asked of users and assuring users that their responses will be confidential and only for the purpose of determining the appropriate test. The perception of confidentiality can be enhanced by relevant badging, standard privacy wording and explainers, and specific FAQs on data privacy provisions, including who can see their data and how it is stored.
- **Ensure cultural safety and appropriate training** by ensuring that the assessment questions are culturally safe, well explained, and phrased appropriately, and having the assessor undertake relevant training. Ensure the pathology sites are culturally safe, and having the pathologist undertake relevant training, and ensure the person delivering results undertake relevant training if via phone call. Consider the use of peer workers. An online model for Aboriginal and Torres Strait Islander peoples is not recommended without Aboriginal peer navigator involvement.
- **Educate service users.** Ensure and educate on consistency/simultaneity of speed and accuracy across all options for testing. Maintain the perception of confidentiality of the service overall. Analysis and results to be visibly synchronised through NSW Health to ensure legitimacy and trustworthiness of service. Ensure and educate continually for appropriate digital and health literacy to promote and maintain uptake. There is a need for a period of enculturation, aided by information sessions to targeted populations. Include video instructions for self-sampling kits in easy-to-understand formats.
- **Online platform requirements** include a preference for a universal platform, not multiple targeted platforms for each priority population. An easy-to-navigate platform with clear, easy read instructions, and an induction or overview introduction to the platform on first access including video instructions. Potential customisation of the website includes a login portal style with pause and return functionality, storage and use of personal preferences, and to log in to receive results and to nominate to whom and how results are shared. The website should be in languages other than English, have referral pathways embedded on site, and options to provide certificates or proof of testing. A quick exit button that returns user to an alternative webpage to minimise risk of other people observing the site.
- **Telehealth requirements** include potential customisation to provide a call back service if long wait times are anticipated or experienced, having interpreters available, and referrals to wrap around care if needed.
- **Notification requirements** include potential customisation to provide for an initial SMS followed up by telephone call.
- **Wide promotion of service** includes social media, the use of QR codes, having the service promoted through Google search engines, and on NSW Health websites. Targeted promotion would be required for each priority population. Promoting the service in languages other than English is necessary. Free or wholly rebateable services were strongly recommended. Having appropriate co-design principles in place when developing a new platform, ensuring suitability for priority populations through pilot testing and evaluation, and robust and competent referral pathways were in place was considered essential.

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Appendix A Participant demographic characteristics

Fifty-one people participated in the nine focus groups and provided demographic information.

Table 1 Aggregated participant demographic characteristics

	n	%
Gender		
- Cis woman	24	47
- Trans woman	3	6
- Cis man	13	25
- Trans man	3	6
- Non-binary	7	14
- Prefer not to say/not provided	1	2
Variations of sex characteristics		
- Yes	1	2
- No	48	94
- Don't know	1	2
- Prefer not to say/not provided	1	2
Sexuality		
- Straight (heterosexual)	26	51
- Gay or Lesbian	11	22
- Bisexual	3	6
- Different term	10	20
- Prefer not to say/not provided	1	2
Country of Birth		
- Australia	27	53
- Africa	1	2
- East Asia	7	14
- Southeast Asia	5	10
- South Asia	2	4
- Western Europe & UK	4	8
- Eastern Europe	2	4
- Middle East	2	4
- Prefer not to say/not provided	1	2
Languages spoken		
- English	26	51
- Other	23	45

	n	%
- Prefer not to say/not provided	2	4
Medicare holder		
- Yes	45	88
- No	5	10
- Prefer not to say/not provided	1	2

Source: Focus group participants - Complete clean list for CSRH provided by Lisa Ryan.