

# Māori and Pacific young people's perspectives on testing for sexually transmitted infections via an online service: a qualitative study

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## ABSTRACT

**Introduction.** International research suggests free online postal self-sampling for sexually transmitted infection (STI) testing is an acceptable alternative to clinic-based testing. A user-pays online STI testing service exists in Aotearoa New Zealand, but acceptability among priority populations is unknown. **Aim.** To explore Māori and Pacific young people's perspectives on online postal self-sampling for STI testing (as prospective service users). **Methods.** Four wānanga (knowledge-sharing forum) were held between November 2022 and May 2023 with Māori and Pacific participants aged 15–24 years who were recruited via youth-focused community organisations. Three facilitators guided discussions about STI testing and use of an online service. Inductive thematic analysis was used to analyse data generated from audio-recorded discussions, group work notes and facilitator field notes. **Results.** None of the 38 participants were aware of online STI testing and all considered it cost-prohibitive. Perceptions of online testing were mixed, and discussion about concerns outweighed perceived benefits. Three themes were identified: (i) potential to support autonomy (perceived benefits and positive features of self-sample collection kits); (ii) barriers and process-related concerns; and (iii) tailoring online STI testing to young people's needs (facilitating engagement with online testing). **Discussion.** For online STI testing to be an accessible alternative to clinic-based testing for priority populations, cost, low awareness and other barriers in the testing pathway need to be addressed. Clinician follow-up on positive results and free treatment would be critical to ensure the cycle of best practice care is completed. Regardless of where testing is accessed, investment is needed to support young people's knowledge of when, why and how to access a sexual health check.

**Keywords:** Chlamydia, equity, gonorrhoea, HIV, internet, screening, self-sampling, sexually transmitted infections (STIs), syphilis, young people.

## Introduction

Easy access to testing and treatment is an important way to prevent the spread of sexually transmitted infections (STIs) and reduce the risk of complications. Untreated bacterial STIs like chlamydia and gonorrhoea can result in reproductive health problems including chronic pelvic pain, pelvic inflammatory disease, ectopic pregnancy and infertility.<sup>1,2</sup> Timely detection, prompt antibiotic treatment of individuals and their recent sexual contacts ('partner notification') and follow-up to test for reinfection at 3 months are all important steps in the best practice management of these STIs.<sup>3</sup> Testing for syphilis and HIV is recommended at the time of chlamydia and gonorrhoea screening as a way to tackle increasing rates of syphilis (including congenital syphilis),<sup>4,5</sup> and to achieve goals related to ending HIV transmission in Aotearoa New Zealand (NZ).<sup>3,6</sup> A sexual health check is free for some people in some settings, but for others, the consultation costs can be prohibitive. Other barriers that inhibit access to sexual health care by young people in Aotearoa include clinic opening hours, appointment availability, models of care, low

## WHAT THIS GAP FILLS

**What is already known:** Screening sexually active young people for asymptomatic chlamydia and gonorrhoea is important to detect infection, prevent transmission and reduce reproductive health risks. Free online postal self-sampling for sexually transmitted infection (STI) testing is an acceptable alternative to clinic-based testing in some countries, but accessibility and acceptability of online testing in Aotearoa New Zealand is unknown.

**What this study adds:** Opinions about online STI testing among Māori and Pacific young people were mixed, but more concerns than potential advantages were identified. Equity in access to online STI testing by Māori and Pacific young people could be improved by reducing cost, improving awareness about STI testing, and addressing barriers identified in the online testing pathway.

health literacy, lack of transport, confidentiality concerns, discrimination, stigma, shame and fear.<sup>7–11</sup>

Online postal self-sampling STI services (referred to from here on as online STI testing) provide an alternative to clinic-based testing for chlamydia, gonorrhoea, HIV and syphilis, so have the potential to reach people who face barriers accessing clinic-based care. Online STI testing services are well established in some countries including the United Kingdom where the SH24 service is funded by the National Health Service, and parts of the United States, Canada, Europe and Australia.<sup>12</sup> A 2020 systematic review concluded that free online STI testing is widely acceptable and preferred by many young people over clinic-based testing due to convenience and anonymity.<sup>13</sup> Studies suggest online STI testing reduces time to testing and treatment, reaches higher numbers of first-time testers,<sup>14</sup> and might be associated with reduced experience of stigma.<sup>15</sup> Drawbacks of online STI testing cited by users and potential service users include loss of positive aspects of an in-clinic visit (opportunity to interact with staff and ask questions); concern about self-sampling technique; privacy concerns using the internet; and not wanting parents to intercept a test kit in the post.<sup>13</sup> Some evidence suggests online STI testing services are underutilised by people who are disproportionately burdened with STIs; a systematic review of UK studies concluded that online service users were more likely to be female, aged > 20 years, be of white ethnicities, and from less deprived areas compared with clinic-based populations.<sup>16</sup>

A user-pays laboratory-based online STI testing service was established in Aotearoa in 2020. Individuals can order a kit via a website ([www.sexualhealth101.co.nz](http://www.sexualhealth101.co.nz)), complete a urine or vaginal sample (and anorectal and pharyngeal swab, if appropriate), return them by courier or by dropping them to a laboratory collection centre for chlamydia and gonorrhoea testing. A laboratory request form is included in the kit so users can visit a laboratory collection centre for HIV

and syphilis blood testing. Results are reported to the user via email with advice given on how to seek treatment from a local primary care or sexual health clinic. People with symptoms are advised to see a clinician for testing. There are no data on user perspectives, accessibility or acceptability of online STI testing in NZ. Māori and Pacific young people experience disproportionately high population case rates of chlamydia and gonorrhoea<sup>17</sup> (yet are screened at proportionately lower rates),<sup>18</sup> and face barriers in their access to sexual health care.<sup>9,19,20</sup> For these reasons, they are considered 'priority groups' who require extra resources and funding to eliminate STI-related inequities. To explore the potential of online testing to reduce inequities in access, this study involved small group wānanga in the Wellington region of NZ to seek Māori and Pacific young people's views towards online STI testing.

## Methods

### Participants and recruitment

Eligibility criteria included age 16–24 years, Māori or Pacific ethnicity, and any gender. Participants were recruited via community organisations that provide services, support and youth development opportunities to Māori and Pacific youth in Porirua and Lower Hutt (cities in the Wellington region of NZ with high Māori and Pacific populations). Participants in Groups 3 and 4 were not in employment, education or training (NEET) and completing strengths-based readiness to work programmes. Groups 1–3 met at the recruiting organisation premises (familiar to participants), and Group 4 met in a marae. Participants received a NZ\$200 giftcard in recognition of their contribution to the research.

This study was approved by the University of Otago Human Ethics Committee (Health) on 31 January 2022 (REF H22/003).

### Wānanga plan and data generation

We held four wānanga between November 2022 and May 2023, bringing groups of young people together to share knowledge and views about online STI testing in a non-judgmental space. We recognised participants as the experts and knowledge holders (consistent with a participatory approach).<sup>21</sup> Fig. 1 describes key elements of the wānanga. Three members of our research team facilitated wānanga, all were female (Pākehā, Sāmoan/Palagi and Māori/Pākehā) with experience related to youth health, rainbow health, mental health, midwifery, Pacific and Māori health, qualitative and co-design research methodologies. Discussion focused on two topics: (1) online STI testing (presented here); and (2) making it easier for young people to access information and services for sexual health (reported in a separate paper). Discussions were audio-recorded with participants' written consent and ideas generated in small break-out groups captured as written 'groupwork' notes. A facilitator took fieldnotes during the wānanga then

Plan	Purpose	Data generated
<p><b>Opening karakia</b></p> <p><b>Introduction</b></p> <ul style="list-style-type: none"> <li>• Introductions and whakawhanaungatanga (establishing relationships).</li> <li>• Admin (Consent forms collected, demographic forms completed).</li> <li>• Participants set the group kawa (expectations around speaking, behaviours, respect, breaks and so on).</li> <li>• Purpose of the wānanga outlined.</li> </ul>	<p><b>Karakia:</b> a traditional Māori blessing often used to open and close a gathering and pay homage to the people and the land the wānanga is held on.</p> <p><b>Relationship building:</b> Facilitators introduced themselves and shared some personal information before inviting participants to introduce themselves. Everyone was encouraged to share a 'fun fact' about themselves.</p>	<p>Demographics (see Table 1) <i>All groups contributed.</i></p>
<p><b>Introducing the topic</b></p> <ul style="list-style-type: none"> <li>• Name an STI, true/false quiz (mythbusting).</li> <li>• Ideas on when and where to get a sexual health check.</li> <li>• What we know from past work and brief discussion.</li> </ul> <p><b>Morning tea (sharing kai/food)</b> <b>Short break</b></p>	<p><b>Fostering engagement:</b> ice-breaker activities designed to build engagement and open up the conversation about STIs and testing. This was an opportunity for exchange of ideas and knowledge between facilitators and participants in an informal, light-hearted way. Facilitators debunked some common misunderstandings, and shared accurate information about getting an STI check (when, where and what it involves). Brief overview of our past research shared as background to Topic 1. Kai (food) shared by way of reciprocity, and further building relationships and rapport.</p>	<p>General awareness of topic (see Results) <i>All groups contributed.</i></p>
<p><b>TOPIC 1: Online STI testing service</b></p> <ul style="list-style-type: none"> <li>• Overview of the online STI testing process (screenshots of website).</li> <li>• Looking at sample-collection kits in small gender-based groups.</li> <li>• Group discussion (sharing thoughts about kits and processes).</li> </ul> <p><b>Lunch (sharing kai/food)</b> <b>Short break</b></p>	<p><b>Knowledge sharing</b> to obtain insights into participant perspectives on the online STI testing service in terms of ease of use, challenges, as well as practical suggestions on how the kits or service can be modified to improve acceptability and uptake. Small group discussions (without facilitators) were deliberately used to enable free and frank sharing of ideas between participants.</p>	<p>Views on online STI testing (see Tables 2–4) <i>All groups contributed.</i></p>
<p><b>TOPIC 2: Problem solving and sharing ideas</b></p> <ul style="list-style-type: none"> <li>• Making it easy for rangatahi to access information and services for their sexual health (including STI testing).</li> <li>• Small break-out group discussion then share ideas with everyone.</li> </ul>	<p><b>Action-oriented discussion:</b> broader consideration of factors that impact on access to sexual health care. An opportunity for participants to problem-solve and generate ideas about addressing barriers and improving access to services for sexual health care.</p>	<p>Strategies to improve access to STI testing (reported in a separate paper)</p>
<p><b>Wrapping-up</b></p> <ul style="list-style-type: none"> <li>• Reflecting on the session and any new knowledge gained.</li> <li>• Check-in with how participants are feeling.</li> </ul> <p><b>Closing karakia and farewell<sup>A</sup></b></p>	<p><b>Reflections</b> invited from participants about how they found the wānanga, any new knowledge gained and how they felt. It was important to make sure they were in a good headspace on departure, and facilitators let them know they had details of support organisations if anyone needed them. Additional STI-related information was offered in the form of pamphlets (in Māori or English) and the justthefacts.co.nz website.</p>	<p>General awareness of topic (see Results). <i>All groups contributed.</i></p>

**Fig. 1.** Plan used to guide wānanga with participants.

<sup>A</sup>After the wānanga. Following analysis, a summary of the main findings was collated and emailed to participants (those who expressed an interest in receipt of a summary), community organisations and others who helped with aspects of this work. Feedback and questions were invited (but none received).

undertook rapid notes analysis immediately afterwards to produce a succinct overview of discussions.

## Analysis

The first two wānanga were transcribed verbatim by team members; the third and fourth (shorter meetings) used Sonix AI transcription software with manual correction of content errors in pertinent parts of the transcript. Fieldnotes were used to produce an initial framework for considering the

data with analysis proceeding using inductive thematic analysis.<sup>22</sup> Three team members familiarised themselves with written transcripts with coding undertaken sequentially by each member (TG then AD then SR). Codes and topic headings were generated and quotes that illustrated or supported topics were extracted from transcripts and stored in a table. The table was discussed among the team, which led to some revision and refining of the topics and agreement on three main themes. Selected quotes are used in results tables to support the key themes and ideas. Some

quotes reflect unique views held by one or a few participants, and others reflect more commonly held views. Quotes have been edited for brevity (fillers and repetition removed) and annotated with the group number (G1-4), gender of the speaker (M, F) and ID (participant number) where distinguishable; gender and speaker ID were not always clear from audio-recordings. Some participants are over-represented in the quotes because they were the nominated spokesperson to share with the main group following group work.

## Results

### Characteristics of participants

In total, 38 participants aged 15–24 years took part; 60% were female and 40% male. Half the participants were Māori and half Pacific ethnicities (14/19 were Samoan), 13% were sexuality diverse (gay, bisexual, pansexual) and two groups were NEET. Just under half (42%) self-reported having been tested for an STI in the past (14/23 females and 2/15 males). [Table 1](#) describes the demographic characteristics of participants and groups.

### General awareness of the topic (when and where to get an STI check)

The quiz activity opened the conversation about STI testing, prompting an opportunity to discuss key facts about testing for common STIs, when and where to get tested. Responses revealed that most participants knew STIs are common and can affect anyone (92%, 35/38). Over one-third thought STIs can be caught via a public toilet seat (39.5%, 15/38), suggesting some lack of awareness about skin-to-skin contact being the most likely mode of transmission. All knew STIs do not always have symptoms (100%, 38/38), and most understood that an STI needs to be treated because it would not go away by itself (92%, 35/38). Sixty percent thought getting an STI test would be painful (23/38), suggesting unfamiliarity with self-collected urine or swab sampling that is commonly used for asymptomatic chlamydia and gonorrhoea testing.

Collectively, groups had a reasonable understanding of when to get an STI check. Suggestions included: when sexually active, with a new partner, when you have more than one partner, when you want to, when someone has cheated, so you do not pass the STI on. Some suggested getting tested regularly; others thought every few months or every 6 weeks was appropriate. There were some omissions, with no mention of testing in pregnancy, when symptomatic, or when a partner tests positive. Some participants were less certain about where to get tested. The general practitioner (GP) or doctor were mentioned in three groups, and family planning and a youth health service were mentioned in two groups. One person asked if you could do the

test yourself or get something from a pharmacy, another asked if you could go to the hospital, another said they would Google it. Most participants in Group 3 (NEET) did not know and no-one mentioned a sexual health clinic or student health service.

Further insight into participant knowledge of the topic was gained from final remarks when they were invited to share something they had learned or that stood out for them at the close of each wānanga. Comments included: 'You can't catch an STI from a toilet seat', 'It doesn't hurt to get an STI test', 'STI tests are free for under 22-year olds', 'How a vaginal swab test works', 'What testing kits look like', 'You can get a test from your bum', 'It doesn't hurt', 'Everything was pretty new', 'There are different types of test kits', 'You can self-test and at home', 'There is a website for online testing', 'Hearing about other's opinions', 'Different resources that are available', 'Most young people don't know about self-testing', and 'There was never an awkward moment'. These reflections highlight the overall positive nature of discussions and are suggestive of an increased awareness about STIs and testing.

### Main themes relating to online STI testing

The three main themes identified from discussions are broadly described as: (1) 'Potential to support autonomy' (encompassing perceived benefits of online STI testing and positive features of the self-sample collection kits); (2) 'Barriers and process-related concerns' (reservations about online testing and self-sample collection); and (3) 'Tailoring online STI testing to young people's needs' (supporting engagement with online STI testing).

Some participants drew on experience with coronavirus disease 2019 (COVID-19) rapid antigen tests (RATs) as they familiarised themselves with the self-sample kits. They commented that swabs looked like those used to test for COVID-19, but that they 'just go in different places.' Participants in Group 2 expressed a desire for STI testing to be as easy and accessible as COVID-19 tests, including the possibility of tests with immediate results (ie 'point-of-care' tests).

### Theme 1: potential to support autonomy

This theme incorporates two sub-themes: (a) perceived benefits; and (b) positive features of home self-sample collection kits ([Table 2](#)). Participants were unanimous in their view that the cost of ordering a kit meant neither they nor their peers would be able to access this service. When asked to set cost aside, perceived benefits included convenience, accessibility, avoiding the embarrassment associated with a clinic visit, and the ability to use it in certain circumstances. Attributes of the kits favoured by some participants included: easy-to-use readymade kits and discreet packaging.

**Table 1.** Characteristics of participants in the four groups contributing to this work.

Self-identified characteristics	Group 1 (n = 10) 3.5 h duration	Group 2 (n = 8) 3.5 h duration	Group 3 (n = 14) 2.5 h duration	Group 4 (n = 6) 1.5 h duration	Total (n = 38) 11 h duration	
	n	n	n	n	n	%
Age-band (years; mean) <sup>A</sup>	(20.4)	(19.9)	(17.5)	(19.0)	(19.2)	–
15–16	0	0	3	0	3	7.9
17–18	0	2	4	4	10	26.3
19–20	1	3	4	1	9	23.7
21–22	3	3	0	0	6	15.8
23–24	5	0	0	1	6	15.8
Not stated	1	0	3	0	4	10.5
Gender						
Female <sup>B</sup>	5	7	6	5	23	60.5
Male	5	1	8	1	15	39.5
Ethnicity (total count) <sup>C</sup>						
Māori	3	3	10	4	20	52.6
Pacific <sup>D</sup>	7	6	2	4	19	50.0
Not stated	0	0	3	0	3	7.9
Sexual orientation						
Straight, heterosexual	8	6	10	4	28	73.7
Gay, bisexual, pansexual	1	1	1	2	5	13.2
Prefer not to say	1	0	0	0	1	2.6
Not stated	0	1	3	0	4	10.5
Ever had a sexual health check						
Yes	5	6	3	2	16	42.1
No	4	1	7	3	15	39.5
Don't know	1	1	1	1	4	10.5
Not stated	0	0	3	0	3	7.9

<sup>A</sup>Our eligibility criteria specified 16 years as the lower age limit, but one participant attending on the day was aged 15 years (we notified the ethics committee and this deviation from the study protocol was approved).

<sup>B</sup>Inclusive of one trans woman. Fifteen females were Māori, and 11 Pacific. Five males were Māori and eight Pacific.

<sup>C</sup>Nineteen participants reported more than one ethnicity, so totals sum to more than 100%. Four participants were both Māori and Pacific. Other ethnicities included: NZ European (8), French (2), Irish (1) and Mexican (1).

<sup>D</sup>Pacific ethnicities included: Samoan (14), Tokelauan (4), Cook Island Māori (7), Niuean (1), Tuvaluan (1), Pitcairn (1).

## Theme 2: potential barriers and process-related concerns

Participants spent more time discussing barriers and aspects of the process they did not like or found confusing than positive aspects. Theme 2 is summarised in [Table 3](#) and draws together two subthemes: (a) general barriers; and (b) specific process-related concerns. These reservations led some to question whether the test result would be accurate or reliable if they took their own sample, with related expressions of uncertainty about their own likelihood of using online testing.

## Theme 3: tailoring online STI testing to young people's needs

While considering the service and sample collection kits, participants shared practical ideas about how they would re-design some aspects to better meet the needs of their peers. Theme 3 'Tailoring online testing to young people's needs' summarises these suggestions, which included reducing cost, supporting knowledge about testing, improving accessibility to instructions, providing alternative ways to access tests and return samples, ensuring support for service users and making treatment easy to access (see [Table 4](#)).

**Table 2.** Theme 1: potential to support autonomy (perceived benefits and positive features of home self-sample collection kits).

Subthemes and topics	Supportive quotes
<b>Subtheme: (a) Perceived benefits</b>	
<p><i>Convenience and accessibility</i></p> <ul style="list-style-type: none"> <li>– Home self-sampling would overcome some access barriers encountered when seeking clinic-based SH care (eg difficulty getting an appointment, lack of transport), so could make it easier for some people to get tested.</li> </ul>	<p>'I think it's pretty good that it's really accessible. You just jump on your computer, your phone, and it's there. Rather than trying to book in a GP appointment.' (G1, F2)</p> <p>'Like an easier source to go to coz like if you're working like it's kind of hard to fit in with your schedule to make an appointment. Like if they're busy all the time it's well...convenient.' (G2)</p>
<p><i>Avoids embarrassment</i></p> <ul style="list-style-type: none"> <li>– Avoids feelings of embarrassment, shame or discomfort associated with a clinic visit for sexual health care.</li> </ul>	<p>'It eliminates the chances of it encountering an awkward situation, so if you went to the doctor [...] that's like, shameful.' (G1, F)</p> <p>'Would you use this at home? Yes, less embarrassing.' (G3 F groupwork note)</p>
<p><i>Good in certain circumstances</i></p> <ul style="list-style-type: none"> <li>– Would use the test to check they were healthy, after a one-night stand, after a new partner and would recommend to sexually active friends.</li> </ul>	<p>'So if I had a partner and I was willing to go to that point. I want to check if I was healthy before I (indistinct) that person, maybe after a one-night stand?' (G4, M)</p> <p>'I'd probably recommend it to like all my other mates who are like hellishly sexually active.' (G2, F2)</p>
<b>Subtheme (b): Positive features</b>	
<p><i>Easy to use, readymade kit</i></p> <ul style="list-style-type: none"> <li>– Appreciation for the straightforward nature of the kit inclusive of everything you need.</li> <li>– Emphasis on the importance of clear, easy-to-follow instructions and appreciation of diagrams and coloured pictures to aid understanding.</li> <li>– Reflection on ease-of-use related to anatomical sampling site (urine vs vaginal swab).</li> <li>– Urine, throat and rectal swabs generally deemed more straightforward to use than vaginal swabs.</li> </ul>	<p>'You can do it in the comfort of your own home and the kits, everything's there. We liked the test, it's all readymade for you, you don't have to go in like, 'oh I need this, I need that'.' (G1, F)</p> <p>'We thought the diagrams were good, like having the pictures made it a lot easier.' (G1, M1)</p> <p>'It's all like labelled pretty well.' (G1, F)</p> <p>'The diagrams are better (than the instructions), easy to follow.' (G3, F groupwork note)</p> <p>'The throat swab simple, its easy, the instructions are easy to follow on that one.' (G2, F)</p> <p>'Yeah, the urine kit, like the one with just the urine, it's way easier cos there's less components.' (G1, M)</p> <p>'It's definitely good for boys.' (G2, M)</p> <p>'Measurements on pipette really helpful.' (G3, groupwork note)</p>
<p><i>Discreet packaging maintains privacy</i></p> <ul style="list-style-type: none"> <li>– Resembles a normal online package so maintains privacy and confidentiality.</li> <li>– Supports ability to keep it private from 'nosey' parents who might open and question its purpose.</li> <li>– Ability to order online removes the need to interact with anyone.</li> </ul>	<p>'We thought the packaging was really discreet, like it does look like a normal package you would order online.' (G1, F)</p> <p>'As long as it doesn't say it's coming from sexual health 101!' (G4, M)</p> <p>'And there's that confidentiality, eh? Like, you don't have to tell mum and dad.' (G1, F)</p> <p>'Self-check-out, won't have to interact.' (G2, groupwork note)</p>

Supplementary Table S1 includes selected participant quotes that support the recommendations presented in Table 4.

## Discussion

Participants had mixed views about online STI testing; none had heard of it and all agreed cost was a significant barrier. There was more focus on potential drawbacks and uncertainties than on potential advantages. This suggests that

those who could or would want to engage with online STI testing might be in the minority. Perceived benefits included convenience, accessibility, autonomy and avoiding the shame or embarrassment associated with a clinic visit. Positive attributes of the kits included appreciation for the discreet packaging and easy-to-use readymade kits. When setting cost aside, reservations related to unfamiliarity with processes, privacy concerns, worries about self-sampling, challenges associated with returning samples to the laboratory, getting a blood test and accessing treatment. Participants wanted access to a helpline (afterhours and

**Table 3.** Theme 2: potential barriers and process-related concerns.

Subthemes and topics	Supportive quotes
<b>Subtheme (a): General barriers</b>	
<p><i>Cost-prohibitive<sup>A</sup></i></p> <ul style="list-style-type: none"> <li>– Unanimous view that the cost of online testing is prohibitive, particularly for those who most need access.</li> </ul>	<p>'I was just gonna say that I think if they can't afford to go to the GP and do this they won't be able to afford to order this online.' (G1, F)</p> <p>'I think it's good for our...it would be better if it was more accessible by being cheaper. And especially because we know now that 15–25-year-olds have the most STIs and they're also the age bracket who don't have the most money.' (G1, F1)</p>
<p><i>Lack of experience and/or confidence</i></p> <ul style="list-style-type: none"> <li>– Without prior experience of testing, online STI testing seems complicated.</li> <li>– Sexual health, STI testing not seen as a priority by some.</li> <li>– Low trust in unknown online service provider.</li> </ul>	<p>'Uncomfortable, sore, might be complicated, confusing, no experience.' (G3, groupwork note)</p> <p>'I think I'll visit a doctor first. And then when I'm comfortable I might do it myself.' (G4, F8)</p> <p>'I feel like a common theme is that this service needs to be provided by those who already have the relationships with the young people. Someone that they trust and it's good because then they know that they're safe and they have the right information.' (G1, F3)</p> <p>'Not having access to the internet?' (G4, M)</p>
<p><i>Forgoing benefits of a clinic visit</i></p> <ul style="list-style-type: none"> <li>– A trade-off of using the online service would be the missed opportunity to talk to a health professional, ask questions and seek reassurance.</li> </ul>	<p>'I probably wouldn't use it personally. Umm I like to talk to people and tell them what's wrong with me.' (G2)</p> <p>'I'd go to the Doctor. I've got too many questions.' (G4, F4)</p> <p>'Probably the Doctor. Just to make sure.' (G4, F5)</p>
<p><i>Privacy concerns in the home</i></p> <ul style="list-style-type: none"> <li>– Desire to test without anyone else knowing.</li> </ul>	<p>'That's also like, a 16-year-old's still living at home. It does come in discreet packaging, but you know some parents are nosy, they're gonna open it up and be like what is this?' (G1, F4)</p> <p>'Imagine if someone walks in the bathroom and they're like...'. (G1, M)</p> <p>'You know like if you didn't want anyone to know that you've ordered it, like living with family. If you're like working and you don't want someone to like tamper or something, you're gonna, like the closest pharmacy you can go and pick it up.' (G2, F)</p>
<p><i>Kit appearance</i></p> <ul style="list-style-type: none"> <li>– Looks very medical and lacks visual appeal.</li> </ul>	<p>'If it looked more appealing to under 25 year olds more people would want to use it (eg adding colour to packaging).' (G3, groupwork note)</p> <p>'Biohazard bag is pretty unwelcoming, like don't touch.' (G3, M)</p>
<b>Subtheme (b): Process-related concerns</b>	
<p><i>Complex instructions</i></p> <ul style="list-style-type: none"> <li>– Instructions may not be universally appropriate (especially for younger people, other cultures), potential for misinterpretation.</li> <li>– Suggested a need for simplification and inclusion of printed pictorial instructions.</li> </ul>	<p>'So, we think that it's too many words.' (G1, F3)</p> <p>'What is this called? Result form? Do we send this back? I feel like not everyone can make sense of...'. (G1, F)</p> <p>'My Samoan cousin won't be able to read that, it'll be really confusing.' (G1, F3)</p> <p>'Cos you know some people might not even know how to read. It's just the wording, age appropriate as well, for everyone to understand.' (G2, F2)</p> <p>'Pee test – no pictures for instructions, seems unhygienic, confusing, packaging unwelcoming.' (G3, F groupwork3 note)</p>
<p><i>Self-sample collection<sup>B</sup></i></p> <ul style="list-style-type: none"> <li>– Fear of making mistakes – concern about ability to use swabs safely and effectively, fear they might snap.</li> <li>– Questions about the accuracy of self-sampling would impact on desire to use.</li> <li>– Lack of clarity about how far to insert swabs (desire for marker to guide).</li> </ul>	<p>'We wouldn't want to do it wrong.' (G4, F4)</p> <p>'Um, yeah, a helpline needs to be on the result form cos I like, get scared that I'm not doing it right and I wanna know.' (G1, F1)</p> <p>'Being from a Polynesian household its not likely for us to do tests like these.' (G2, groupwork2 note)</p>

(Continued on next page)

**Table 3.** (Continued)

Subthemes and topics	Supportive quotes
<ul style="list-style-type: none"> <li>– Difficult for someone who is bigger bodied to self-sample, and concern about effective rectal sampling.</li> <li>– Cultural beliefs or values might prohibit use of swabs.</li> <li>– Desire for access to a helpline to seek clarification and reassurance.</li> </ul>	<p>'Like if it's your first time and you've never used plugs or anything like that, it, how far do you stick it up?' (G2, F)<sup>a</sup>And like how do you know how to judge like 2½ centimetres up your...' (G2, M)</p> <p>'Being plus size, I wouldn't use it on my own. Just for safety precautions as well. What if it snaps or something goes wrong, or I'm not doing it right? We also recommended that they make the swabs a bit longer and thicker.' (G2, F2)</p> <p>'I would go to the doctor. If it had to be a rectal like...this. I'd rather let my doctor do it.' (G2, F2)</p>
<p><i>Logistics</i></p> <ul style="list-style-type: none"> <li>– Delivering samples to a laboratory perceived as an inconvenient additional step, suggested it would be easier just to go to a clinic or drop samples off to a school nurse.</li> <li>– Challenging for some people to get to a collection centre in a timely way (no transport, embarrassment/loss of privacy associated with having to ask for a ride).</li> </ul>	<p>'Cos you have to get it mailed to you and then drop it off when you go get a blood test, eh? If it costs the same as going to your GP anyway, like you could just go and do it all at once. And it would be like quicker and easier for you if you don't know what you're doing.' (G1, M1)</p> <p>'So even if they could like, drop it to their school or something? Or give it to their school nurse? Might be a bit easier.' (G1, M1)</p> <p>'I mean I don't think everyone would know.' (G1, F2)'I don't think it's common knowledge.' (G1, F3)'Unless you've had a blood test before.' (G1, F1) 'It'd be quite intimidating too, by yourself as well.' (G1, M)</p>
<p><i>Results and treatment</i></p> <ul style="list-style-type: none"> <li>– Uncertainty about when and how results are communicated, what happens next, concern for those who do not have a GP (worry they would not be able to get treatment).</li> <li>– Surprise and dismay that treatment needs to be sought from a doctor (presents the same set of barriers people experience with clinic-based testing).</li> <li>– Desire for an option of having results sent to one's own GP, so you can wait for your trusted, known health provider to contact you and arrange treatment.</li> </ul>	<p>'You know when you do get the results? Do you also get like, do they tell you what to do next? Like the next step?' (G1, M)</p> <p>'What if you're not with a GP?' (G1, F2)</p> <p>'They can't send you any pills?!' (G1, F1)'I feel it just eliminates that whole process.' (G1, F3)</p> <p>'It would make sense if you test positive, like if you've got a GP, it would make sense for them to send your GP the results and then your GP can just phone you up if you're positive for this. For a prescription...' (G1, F4)</p>

<sup>a</sup>Note that G2, 3, 4 were all told what kits cost, but then asked to assume the service was free when considering the kits. G1 were told how much it cost, but were not explicitly asked to set that aside for the purpose of the discussion and therefore kept returning to this point in their conversations.

<sup>b</sup>At the time of our study, kits were sent out with written instructions and small black and white diagrams for the three swabs, but only with written instructions for urine collection (no diagrams). Full colour illustrated instructions were available on the website.

weekends), easier ways to access treatment and acknowledged the need for better education and health promotion activities around this topic. This self-recognition of knowledge gaps was important, as having a good understanding about why, when, how and where to access an STI check are critical prerequisites to participation in testing in any setting.

Our main findings align with international research on barriers and enablers to use of online STI testing. For example, drawbacks identified here were similar to those reported in a systematic review of studies from the UK, US and Australia,<sup>13</sup> such as low self-efficacy and worry about self-sampling correctly, concerns about parents intercepting a test kit and missed opportunities to interact with a clinician. Predictably, participants differed in their opinion of what constituted a drawback or benefit. Despite acknowledging stigma and embarrassment associated with clinic visits, some stated a preference for clinic-based testing due to uncertainties about online testing and the inability to interact with a clinician – views also shared in past

studies.<sup>13</sup> By contrast, others felt online testing would avoid having to answer a 'whole heap of questions.'

Findings that may be unique to our study include a preference for online testing to come from a known, trusted provider, with local options for kit collection and return. This desire by Māori and Pacific youth to engage locally suggests services that are designed and delivered by their own communities might be better supported than a national service. Pacific participants talked about the role of the church in shaping attitudes towards sex and related challenges they faced when their own beliefs differed to those of their parents. This impacted on their ability to openly discuss sexual health with parents, in turn raising 'fear of being caught' with a kit, and inability to ask for help with any aspect of the testing process (eg transport to the laboratory or a clinic for treatment). Some Pacific participants commented that vaginal self-sampling did not align with their cultural beliefs. This could be an age-related concern for those who are not yet sexually active, as research involving Pacific participants aged 30–69 years suggests vaginal self-

**Table 4.** Theme 3: tailoring online STI testing to young people's needs.

Recommendation	Description of suggested changes and improvements to support engagement with online STI testing
Reduce service costs, it should be free.	<ul style="list-style-type: none"> <li>• Unanimous call for cost to be significantly reduced, ideally provide the service for free. If it is not affordable, young people will not be able to engage with it.</li> </ul>
Support rangatahi knowledge – more education and health promotion needed to raise awareness of the importance of STI testing.	<ul style="list-style-type: none"> <li>• Young people need to know why testing is important, when to get tested and what it involves.</li> <li>• Understanding potential consequences of untreated STIs (eg infertility) would act as a motivator for getting checked.</li> <li>• Normalise testing by involving parents in education and discussions about sexual health (eg by holding Pasifika Talanoas, or local workshops to educate the community).</li> <li>• Go to where the young people are to share information and raise awareness (eg churches, marae, youth groups, 'plaster it all over social media', put posters up in schools and pharmacies).</li> </ul>
Linking with known, trusted providers to improve confidence in an online service. Alternative options for kit collection and sample return if concerned about privacy at home (desire for familiar places).	<ul style="list-style-type: none"> <li>• Ability to collect kits from familiar local places in the community (GP, pharmacy, youth-focused community organisations) would make it easier for some people.</li> <li>• Slot for returning samples at user's convenience (like library book return) at doctor or school clinic.</li> </ul>
Provide timely support to service users. Ensure easy access to treatment.	<ul style="list-style-type: none"> <li>• Helpline (phone or email) staffed at weekends and afterhours to answer questions and provide reassurance.</li> <li>• Consider those who do not have a GP, provide a system to follow-up positive results and check on treatment.</li> <li>• Need to be able to access free treatment or there is a risk people will remain untreated, and the cycle of care will be incomplete.</li> <li>• Provide choice for GP to receive a copy of results and get in touch with the individual regarding their treatment.</li> <li>• Proposal for a system that integrates online testing results with a system for providing treatment without seeing a doctor (eg by looking up health records to check any allergies or contraindicated medications).</li> </ul>
Modify kit packaging and contents to appeal to young people (eg inclusion of more colour to improve visual appeal). Simplify written instructions, include colour illustrated instructions in place of black and white ones. Offer video explanation and instructions in other languages.	<ul style="list-style-type: none"> <li>• Instructions need to be pictorial, simple with an 'easy-read' version.</li> <li>• Offer instructions in other languages to be more inclusive.</li> <li>• Video explanation of testing process that is accessed via QR code.</li> <li>• Colourful kit packaging for visual appeal to improve 'unwelcoming', 'medical', 'sterile' look.</li> <li>• Print the local lab collection centre addresses on the form to eliminate yet another step (in what might already be a stressful process for some).</li> <li>• Include a mark/measurement line on swab sticks to indicate how far to insert it.</li> <li>• Include multiple tests in one kit (like RAT tests) for convenience.</li> <li>• Include back-up items in the kit in case of mistakes (eg include extra swabs).</li> <li>• Inclusion of gloves for hygiene, smaller urine sample collection container (more discreet).</li> </ul>

sampling for human papillomavirus (HPV) testing is acceptable and viewed more favourably by many than clinician-taken samples.<sup>23</sup> Although some barriers were common across Māori and Pacific participants, those related to religious beliefs were more specific to Pacific participants for whom family, culture, church and community are closely linked. Participants elaborated further on these points in the second part of the wānanga (reported in another paper).

Despite reporting confidence with COVID-19 self-testing, much of the discussion centred on self-sampling concerns. Some stated they would rather 'get it done professionally' than risk doing it wrong. This might reflect the low levels of familiarity with STI testing methods among some participants as clinic-based asymptomatic screening would

typically involve self-sampling.<sup>24</sup> This finding highlights the importance of reassuring online service users that there is little chance of error, most people find it easy and painless to self-sample, and that results for self- and clinician-collected samples are equally accurate.<sup>25,26</sup> In our study, several males in Group 3 commented that sexual health was not something they think about or see as a priority. This finding is not unexpected and aligns with STI testing patterns in NZ (and internationally) where males tested at significantly lower rates than females.<sup>27</sup> It seemed unlikely that our participants would present to the laboratory for HIV and syphilis testing due to concerns raised about ability to get to a collection centres, unfamiliarity and intimidation. By contrast, research in the UK has

shown online services can successfully reach first-time testers; for example, when randomly assigned to receive a text message link either to an online service or to a clinic, 45% of participants aged 16–30 years accepted testing via an online service, but only 24% accepted the clinic option.<sup>14</sup> Even if available as a free service, limited awareness, lack of confidence and various reservations regarding aspects of the testing pathway indicate that engagement in online testing by Māori and Pacific first-time testers (and likely young people more generally) would be low without additional education and support in place.

Participants held legitimate concerns about potential difficulties accessing treatment, with a particular focus on cost; not everyone was aware some clinics offer free sexual health care for young people or were not aware of services available in their area. They expressed surprise and disappointment about the need for a clinic visit for treatment, felt this negated the convenience of online testing and presented the same range of barriers that limit access to clinic-based testing. In the UK, people diagnosed with uncomplicated genital chlamydia infection can be prescribed oral antibiotic treatment that is sent by post, but NZ prescribing laws do not allow for this. Postal treatment has been shown to be an acceptable option for uncomplicated genital chlamydia if safety concerns (medical history, allergies, contraindications) have been addressed remotely (phone, text, email).<sup>28</sup> In NZ, a telehealth consultation could be considered with a prescription sent to a nominated pharmacy for people requiring chlamydia treatment who are unable to access a clinic. Ideally, an online service would incorporate phone or email follow-up of all cases to check on treatment completion (and partner notification), which would allow for an audit of clinical outcomes related to best practice care.

## Strengths and limitations

This study is the first to report on young people's perspectives on online STI testing in NZ. Barriers, enablers and strategies that could be implemented to support engagement by Māori and Pacific young people were identified. Our recruitment method was a strength of the study. By working with community organisations that support youth development, meeting in convenient locations and offering gift cards, we achieved our recruitment goals. We had an equal split of Māori and Pacific participants, half of whom were NEET. The sample was inclusive of gender and sexuality diverse participants, with different levels of knowledge and STI testing experience to draw on. Many participants knew each other, had shared aspirations or were at similar stages in their lives. Humour and shared laughter were common throughout, particularly while reviewing kit contents in smaller, mostly gendered groups.

Limitations of the study include the use of mixed gender meetings, which we acknowledge might not align with some Pacific cultural protocols for discussions related to sexual

health. We were led by the community organisations that arranged participant recruitment and all participants consented to take part knowing groups were mixed. Small group discussions were mostly gender-specific, but some participants might have felt less able to openly share views when reporting back to the mixed-gender group. We expected most participants in one of our groups to be sexuality or gender diverse based on communications with organisers, but most identified as cis-gender, heterosexual/straight, so some views unique to gender and sexually diverse Māori and Pacific young people will have been missed. Facilitators were unknown to participants, which could have been a positive or negative in terms of participants willingness to share. The inclusion of a male facilitator would have been beneficial for encouraging greater engagement by male participants. We explored Māori and Pacific perspectives as prospective users of online STI testing (similar to the approach taken in most of the published literature to date).<sup>13</sup> Further research is needed to evaluate the experiences of actual service users in NZ to differentiate between real and perceived barriers. Feedback on the online testing website itself was not sought in this study. We acknowledge that some uncertainties around processes might have been clarified had participants directly engaged with the website, or been able to read the frequently asked questions (FAQs) section.

## Implications

Increased access to innovative testing and treatment approaches has been identified as a priority area in the Aotearoa New Zealand Sexually Transmitted and Blood Borne Infection Strategy 2023–2030. Drawing directly on voices from priority groups, this study generated new knowledge about barriers, enablers and recommended changes that could inform future planning or policy related to online STI testing. A funded service would improve choice for young people, but if under consideration, it would be crucial to involve Māori and Pacific young people in the co-design of key elements in the testing pathway to maximise access and acceptability among these priority groups. To improve testing coverage (in any setting), investment is also needed in culturally appropriate health promotion<sup>29,30</sup> to support young people's understanding of when, why and how to access a sexual health check.

## Supplementary material

Supplementary material is available [online](#).

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**Data availability.** Our dataset comprises audiorecordings and related transcripts, as well as handwritten notes. These contain names and other identifiable information about participants. Consent was not sought from participants, nor ethical approval granted to share information. For these reasons, our data are not being made available outside of the research team.

**Conflicts of interest.** The authors have no conflicts of interest to declare.

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