




# Understanding the role of patient communication protocols in sexually transmissible infections point-of-care testing among Aboriginal and Torres Strait Islander peoples in remote communities: a qualitative study

Robert Monaghan<sup>A,\*</sup>, Louise Causer<sup>A</sup>, James Ward<sup>B</sup>, Belinda Hengel<sup>A</sup> , Kirsty Smith<sup>A</sup>, Kelly Andrewartha<sup>C</sup>, Christopher Fairley<sup>D,E,F</sup> , Lisa Maher<sup>A</sup>, Donna Mak<sup>G</sup>, Caitlyn White<sup>H</sup>, Jessica Leonard<sup>I</sup>, Rebecca Guy<sup>A</sup>, Lise Lafferty<sup>AJ</sup>  and on behalf of the TTANGO2 Collaboration

For full list of author affiliations and declarations see end of paper

## \*Correspondence to:

Robert Monaghan  
Kirby Institute, University of NSW, Sydney,  
NSW, Australia  
Email: [rmonaghan@kirby.unsw.edu.au](mailto:rmonaghan@kirby.unsw.edu.au)

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## ABSTRACT

**Background.** Untreated sexually transmissible infections (STIs) such as *Chlamydia trachomatis* and *Neisseria gonorrhoeae* can lead to serious health issues, including pelvic inflammatory disease, infertility in women, increased HIV risk, and emotional distress. Timely testing and treatment are crucial for reducing transmission. Australia's STI Management Guidelines recommend regular STI testing every 6–12 months for sexually active individuals aged 15–35 years in high-prevalence, remote areas. However, testing uptake remains low among young Aboriginal and Torres Strait Islander peoples. This analysis explores how healthcare providers engage Aboriginal and Torres Strait Islander peoples in STI testing using point-of-care (POC) diagnostics. **Methods.** Semi-structured interviews were conducted with trained STI POC testing operators within the Test Treat ANd GO (TTANGO2) project. Seven clinics involved in TTANGO2 were selected for their 'high' and 'low' implementation of STI POC testing. Purposive sampling was used to recruit similar personnel from each of the selected clinics. Coding was informed by a patient communication protocol lens. **Results.** Twenty healthcare personnel, including Aboriginal Health Workers/Practitioners ( $n = 8$ ), Registered Nurses ( $n = 7$ ), Coordinators ( $n = 2$ ), and Clinical/Practice Managers ( $n = 3$ ) participated. Key themes related to implementing STI POC testing focused on different stages of identified patient communication protocols, such as offering tests, providing follow-up results, and contact tracing. Concerns about shame and confidentiality were significant factors affecting patient communication protocols throughout the process. **Conclusions.** Normalising sexual health discussions in healthcare settings helps reduce feelings of shame and stigma, further encouraging patient participation in sexual health services. Ensuring patient safety and offering culturally appropriate explanations of STI POC testing are essential to reduce barriers, such as shame and stigma. Culturally safe practices can increase patient engagement and provide opportunities for health education. Integrating STI POC testing into routine health care can help normalise testing and boost uptake. However, same-day results may still require patient follow-up to maintain confidentiality. Addressing external factors, such as accessibility, confidentiality, stigma reduction, and community engagement, is crucial for improving STI testing services.

**Keywords:** Aboriginal and Torres Strait Islander peoples, normalising STI testing, offering STI testing, patient communication protocols, point-of-care testing, qualitative research, remote communities, sexually transmissible infections.

## Introduction

Untreated sexually transmissible infections (STIs), such as *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG), can result in severe health consequences, including pelvic inflammatory disease, infertility,<sup>1</sup> and increased risk of HIV.<sup>2</sup> The asymptomatic nature of

many STIs, and shame and embarrassment,<sup>3</sup> can inhibit sexual healthcare engagement. Timely access to testing and treatment are crucial to reducing STI transmission.<sup>4</sup>

The Australian STI Management Guidelines for use in Primary Care Settings (Aboriginal and Torres Strait Islander peoples) recommend that people living in remote, higher-prevalence communities who are sexually active, aged 15–35 years, and are not in a monogamous relationship, undergo STI testing every 6–12 months.<sup>5</sup> However, recent survey findings of young Aboriginal and Torres Strait Islander peoples, aged 16–29 years, indicate low uptake of testing, with 36% of participants reporting never having undergone STI testing.<sup>6</sup>

Aboriginal Community Controlled Health Centres (ACCHSs) are culturally safe primary care services, which operate in communities across Australia with high Aboriginal populations. An ACCHS is a primary healthcare service initiated and operated by the local Aboriginal community to deliver holistic, comprehensive, and culturally appropriate health care to the community that controls it, through a locally elected Aboriginal Board of Management.<sup>7</sup> In remote settings, accessing sexual health care can be challenging, particularly in communities where choice of healthcare providers is limited (e.g. in remote settings, which may only have one health service),<sup>8</sup> and culturally appropriate gender-sensitive health care may not always be available due to staff shortages.<sup>9</sup> Remote Australian health care is also characterised by high turnover of staff, and is often reliant on locum staff using a fly-in/fly-out model, which can create barriers in developing rapport and building support and engagement with community members.<sup>10–12</sup> Additionally, this model is often focused on acute and triaged care patients, leaving little resourcing for preventive health care.

Shame and stigma can underpin sexual healthcare engagement,<sup>13</sup> particularly among young Aboriginal and Torres Strait Islander peoples.<sup>14</sup> Patients in smaller communities are more likely to know personnel working at the health service and may be less likely to attend for STI-related reasons due to concerns about confidentiality. Research has found that in remote settings, lack of symptoms and lack of awareness of STIs inhibited health-seeking from patients (individual level), while concerns of shame and embarrassment of being seen to be accessing a health service (social and health service levels) further limited patient access for sexual health care.<sup>14</sup> Additionally, the limited availability of services, and subsequent lack of choice of services, can exacerbate barriers, such as confidentiality concerns. These findings suggest the critical need for healthcare providers to be skilled in comfortably and appropriately engaging Aboriginal and Torres Strait Islander peoples in discussions about sexual health, including offering STI testing.

In regional and remote Australia, there are multiple factors that contribute to delays in the diagnosis and treatment of STIs. These factors include geographical distance from diagnostic laboratories (whereby infrequent planes may be required to transport specimens), constrained health service capacity to locate and recall patients for treatment due to workforce shortages (patient recall can be difficult and may

require outreach support by the health service),<sup>15</sup> and a highly mobile young population.<sup>16</sup> Point-of-care (POC) testing, that is, testing which is completed outside of a laboratory and conducted at or near the patient, can reduce health costs and waiting times, facilitate timely diagnoses and treatment accuracy, and facilitate patient follow-up.<sup>17</sup> The Test Treat AND GO (TTANGO) program supports the delivery of integrated molecular STI POC testing in more than 70 remote and regional primary care services in six jurisdictions across Australia. Trained healthcare providers conduct molecular POC tests (for CT/NG) onsite, with laboratory-comparable results available in 90 min.<sup>18</sup> This program was initiated as a randomised trial (TTANGO 2013–2015),<sup>19</sup> with findings rapidly translated and scaled up into a sustained national program (TTANGO2 2016–2019; TTANGO3 2020-current).<sup>20</sup>

Drawing on interviews with trained STI POC operators within the period of TTANGO2 implementation, this study seeks to understand the ways in which healthcare providers engage Aboriginal and Torres Strait Islander peoples for STI testing using POC diagnostics and how these engagement practices align with patient and cultural safety for patients in order to overcome known barriers to STI testing.

## Methods

Healthcare personnel were recruited from seven primary care clinics participating in the TTANGO2 program in 2018. Clinics were located in remote and regional areas across four jurisdictions within Australia, including the Northern Territory, Queensland, South Australia, and Western Australia. Most of the clinics are ACCHSs, with one clinic governed by a state health department. Clinics primarily serviced Aboriginal and Torres Strait Islander patients in small, geographically isolated, and remote communities. Detailed information about clinic site selection for this qualitative study has been previously reported.<sup>21</sup> Clinics were purposefully selected from within the TTANGO2 program to include those with ‘high’ ( $n = 3$ ) and ‘low’ use of STI POC testing ( $n = 4$ ). Clinics were categorised based on the number of STI POC tests performed in the previous 12 months. ‘High’ testing clinics were defined as those which conducted  $>150$  STI POC tests over the previous year and consistently reported  $>10$  STI POC tests per month; ‘low’ testing clinics were defined as those with  $<150$  POC tests over the previous year and consistently reported  $\leq 10$  STI POC tests per month.<sup>21</sup> Although we employed a metric to assess clinics as either ‘high’ or ‘low’ performing of STI POC testing, assessment of clinics by a single domain is not indicative of a clinic’s overall performance in other healthcare delivery/service domains.<sup>22</sup>

Purposive sampling<sup>23</sup> was undertaken to recruit comparable personnel (e.g. Clinic/Practice Managers, Aboriginal Health Workers/Practitioners (AHWs/AHPs), nurses) from each of the seven selected clinics. The TTANGO2 Program

Coordinator contacted Practice Managers/Clinic Coordinators at each of the clinics for a list of potential healthcare personnel participants at their respective clinic. The interviewer (LL) then contacted potential participants directly; one nurse declined to participate (reason not provided).

The interview guide was developed by the study authors with input from both the TTANGO2 Investigator and Executive Groups (with the former comprised of study investigators and the latter comprised of study investigators, representatives from state/territory Aboriginal health peak bodies and representatives from state/territory health departments). Participants were asked to reflect on their experiences relating to their use of STI POC testing, normalisation of STI POC testing, cultural and community acceptability of STI POC testing, sustainability of STI POC testing, and personal individual demographic characteristics.

Nearly half of interviews were conducted in person (nine interviews across two clinics), with the remainder completed over the phone (11 interviews across five clinics). Participants were not remunerated. Interviews were audio-recorded and transcribed verbatim.

Deidentified transcripts were uploaded to NVivo 12 qualitative software (QSR International). An initial round of deductive coding was conducted (LL) and informed by the interview guide. Following this, topic summaries informed a secondary round of inductive coding (RM and LL) to synthesise themes within the nodes relevant to patient communication protocols.<sup>24</sup> The first author (RM) is a respected Aboriginal man who has been engaging and consulting with Aboriginal and Torres Strait Islander communities across Australia for more than two decades. LL is an experienced qualitative health researcher working in infectious diseases in key settings. During analysis, RM applied a cultural lens, reflecting Indigenous ways of knowing, being, and doing when reviewing the data.<sup>25</sup> During the inductive coding process, RM and LL iteratively discussed themes within the data. Through this reflective process, patient communication protocols were found to encompass how patients were offered testing (within the context of POC testing), how patients were followed up (delivering results), and contact tracing strategies.

All participants had completed STI POC training as part of the TTANGO2 program. The participants' staff roles and whether they worked at a 'high'/'low' STI POC testing clinic are presented alongside participant quotes. 'Management' refers to all managerial positions held by participants within this study (i.e. Service Coordinators, Practice Managers, and Clinic Managers). 'Nurses' includes Enrolled Nurses and Remote Area Nurses. AHWs and Aboriginal Health Practitioners AHPs are combined into AHWs/AHPs. While some participants did not have direct patient-engagement roles, it is likely their management duties within the services influenced healthcare personnel adoption and implementation of STI POC testing, or they were aware of strategies utilised by healthcare personnel to engage patients in STI testing.

All participants received a participant information statement and consent form and provided signed consent prior to interview.

### Ethics approval

Ethics approvals for this qualitative study were obtained from the Aboriginal Health Research and Ethics Committee (HREC 04-15-626) (South Australia), Aboriginal Health Council of Western Australia (Project 644), Central Australian Human Research Ethics Committee (Project 16-373) (Northern Territory), and Far North Queensland Human Research Ethics Committee (HREC/15/QCH/66-986).

### Results

Twenty healthcare personnel who received POC operator training as part of the TTANGO2 program participated in a semi-structured interview. Participants included AHWs/AHPs ( $n = 8$ ), Nurses ( $n = 7$ ), Coordinators (including chronic disease and sexual health) ( $n = 2$ ), and Managers ( $n = 3$ ).

Themes relating to healthcare workers' implementation of STI POC testing and broader sexual health engagement centred on various aspects (and timepoints) of STI-related patient communication protocols, including offering testing (inclusive of opportunistic), patient follow-up (i.e. providing results to patients), and concerns relating to contact tracing. Personnel identified patient shame and concerns of confidentiality as underpinning many aspects of patient communication protocols. This suggests that healthcare providers' understanding of local cultural knowledge and cultural safety, relevant to patient communication protocols and patient-provider relationship building, likely influence patient uptake of comprehensive STI testing.

### The role of opportunistic STI testing for increasing patient uptake

Several participants described opportunistic offering of STI POC testing as well-received by patients, whereby POC testing was integrated into clinical practice as part of holistic care. Consequently, offers of STI testing were incorporated into broader healthcare discussions. There were also some considerations that patients within a particular age group would be 'targeted' for STI testing when presenting at the service and that what was important in these clinical interactions was the way in which STI tests were offered. Opportunistic testing, rather than patient-requested or strictly risk-based testing, was also viewed as reducing shame as a barrier to sexual health care. Opportunistic testing approaches were more frequently conveyed among high POC testing clinics.

I've had a young fellow come in here with a sore knee the other day, a football player, and I saw he's been treated for

syphilis last year and I mean he came in for a dodgy knee from football, and I said, 'Right, okay, let's do some ...' you know, like [clinic coordinator] says, 'Test everyone, just test them,' you know, so I've got a urine sample and bang, he's got chlamydia. [*Right, okay.*] And if I didn't, if I'd just treated his knee and let him walk out, he would've walked out with chlamydia, so now I can track him down and I can treat him. [*Yeah, okay.*] I gave him condoms. (Nurse, high POC testing clinic)

[*So it almost sounds like STI screening then is sort of opportunistic when patients come in for other issues?*] Well, so it is built into daily practice. So it is opportunistic, but if you're in the age group, which I think is 15–34, you will be targeted. [...] What I would say is that shame is a huge factor. That's probably the cornerstone of why STIs, the rates are at, and why it's hard to get on top of them, and it would most definitely be based around shame, the cultural thing around that. (Management, high POC testing clinic)

While opportunistic testing was regarded as an enabler for patients to agree to STI testing, not all approaches were well received by patients. As noted below, some patients declined STI testing when offered within annual health checks for Aboriginal and Torres Strait Islander peoples (known as the '715 health checks'), although the way in which this testing was offered was not elaborated on. At services with lower testing rates, participants were more likely to report that patients may decline STI testing. In services with higher POC testing, several healthcare workers described the importance of language in how STI testing was offered, which may help to overcome shame and personal barriers to STI testing. This suggests that POC training should include examples of language for offering STI testing to patients.

There's a certain way of asking where you won't get refusals. [*Okay.*] Say, you know, "I'm just going to check your urine for gonorrhoea and chlamydia, is that okay?" and they are all going to say, "What? No", they are all going to say No, but if you put it in another way, "We're just going to check your urine and make sure you're healthy and haven't picked up any STIs" they will say, "Oh, okay". [*Okay when you leave it more generic...*] It's the way you ask the question, yeah. (Management, low POC testing clinic)

I mean people just come in just to have a dressing, offer that PCR [polymerase chain reaction] test and explain that you test for everything, you know. I mean it's not only your reproductive system, it's also your, you know, diabetes or whatever, your kidney, yeah, but you just have to learn how to sell it, that's all. [*Yeah, okay.*] Everybody's got their own way how to talk and how to sell it to make people feel a bit at ease. I'm not trying to stigmatise your health for STI, but just make it a bit broader, bit of

holistic approach, I suppose, yeah. (AHW/AHP, high POC testing clinic)

### The role of offering POC testing vs standard care testing

Integration of discussion regarding the availability of POC diagnostics was factored into clinical conversations with patients at various stages of the consult, with some healthcare providers mentioning POC testing *prior* to specimen collection and others discussing availability of onsite diagnostics *after* specimen collection (noting that patient consent for STI testing was obtained *prior* to specimen collection but that mention of POC testing availability occurred *after*). For personnel who explained POC testing earlier in the consultation, they described that the mention of the POC testing opportunity, facilitating swift results, was well received by patients. The ability to deliver same-day results was occasionally viewed as an enabler to STI testing, with prompt results reducing anxiety that may be associated with long waits for standard pathology results. Again, the language used conveys the ways in which patients may be made to feel more receptive to sexual healthcare engagement, rather than more direct approaches which may act as a deterrent.

[If a patient comes in and you're going to use, you're going to do STI screening with them, at what point in the consult do you offer the T-TANGO machine screening?] Very early on in the consultation, and we kind of use it as a selling point and I've never had a negative response, you know, like I've read previously where some people like, you know, don't mind waiting a week for a result because it gives them time to psychologically prepare themselves for the result, but that hasn't been my experience at all. [...] I can't say that I've ever had anyone refuse. [*Okay.*] On the basis of ... it's certainly been positively received by our clients. (Nurse, high POC testing clinic)

Despite the many enablers to STI testing offered by POC testing and the targeted-intervention approach, confidentiality remained a key barrier to STI testing. As an AHW/AHP (high POC testing clinic) explains, waiting at the clinic for results is regarded as potentially risking patient confidentiality: 'They really don't wait around. [...] it's a small community, you know, everybody like wondering what you're doing here'.

[Can you tell me about a patient that was not happy with [being offered STI POC testing]?] Oh, they'll just say they refuse to do the test or they won't answer the questions. [...] [Do you know why they don't want to do it?] Maybe it could be a shame factor, they don't want to do it, or maybe they just – shame factor like they don't want us to know if they're being active or not. [*Okay, so they're declining getting STI screens, not just [POC testing]?*] You explain what [POC testing] is to them and, well, of

course, they might decide, no, I don't want everyone to know my business. (AHW/AHP, low POC testing clinic)

### Mutually agreed protocols for patient follow-up

POC testing has been lauded as particularly valuable in settings with highly transient populations where patient follow-up can be impeded by patient geographical movement. As such, it has been viewed that providing results within 90 min should facilitate better delivery of timely care. The language used by healthcare providers to communicate the importance of/need for follow-up, and reconnecting in community later in the day for delivery of results, was viewed as a critical component to effective timely response afforded by POC diagnostics. In these interactions, healthcare workers are proactive in co-developing patient follow-up protocols with the patient to facilitate communication of results later in the day, mitigating patient drop off in the sexual healthcare cascade. As noted in the quote below, these discussions with patients further communicated the benefits of POC testing, through reinforcing availability of same-day results.

I find having the machine onsite, explaining to our clients that, "Hey, we're going to have an answer for you in a couple of hours", I think facilitates earlier treatment. [...] And so I tend to say to them, when I see people in the clinic, it's actually too long, you know, and I just say, "Where are you going to be this afternoon? What house will you be at? If I come looking for you in the next couple of hours, you know, I'll come to that house and look for you". And I find that they are quite interested in that idea and are like, "Oh, we're going to find out the same day". So I actually think it's beneficial. (Management, high POC testing clinic)

### Mitigating patient concerns of contact tracing

Many participants described how trying to deliver sensitive health care in such small communities could be challenging for partner notification, and subsequent barriers to confidentiality. Similar to offers of STI testing, some healthcare personnel indicated the way in which contact tracing was discussed with patients influenced people's comfort levels with testing, and, if necessary, partner notification. Again, language matters.

[W]e say that it's our job to stop and prevent the spread of infection. So the sooner we're able to get results, the sooner we're able to treat people, the better it is for everybody. It's not a blame game, it's not, where we can certainly do things very, very discreetly. This is an incredibly small [community] and you think that confidentiality would reign anywhere in the health system, but up here, it's even ... it's magnified greatly. The degree of confidentiality is incredible. There

are a lot of people that work in our centre here that might be related or friends of the people that are coming in. So, I guess in the end, while they might be apprehensive about a partner finding out about a positive result, we say, it's good to, you know, it's a positive thing to be screened every year, especially if you're in the target group age, both you and your partner, to be screened. (Nurse, high POC testing clinic)

## Discussion

The language used during healthcare engagements underpinned all aspects of STI testing (whether specifically offering POC testing or not), including the framing of offering testing (whether opportunistic or risk-based), making a plan with the patient for same-day follow-up for test results, and mitigating concerns of contact tracing. The importance of sensitive language around offering STI POC testing was viewed by several participants as fostering patient safety and facilitating care engagement. Healthcare workers identified the role of offering a POC test opportunistically as overcoming patient barriers through normalising testing and communicating the benefits of POC testing (e.g. rapid results). Discussions around POC testing were viewed as beneficial in facilitating conversations about STIs, including risks, testing, and treatment. However, some personnel described missed opportunities for patient education of STI risks and transmission. Shame, stigma, and confidentiality were regarded as the primary barriers to uptake of STI testing, though this was often viewed in the absence of normalising language to offer testing. Our findings suggest that STI POC testing, when offered in a culturally informed and culturally safe way can assist with overcoming known barriers to sexual healthcare engagement and foster participation in STI testing in remote Aboriginal and Torres Strait Islander communities.

Shame in the context of sexual health requires a holistic approach that considers the individual needs and experiences of patients, as well as the broader social and cultural contexts in which health care is delivered.<sup>26</sup> While participants described being aware that this barrier existed among patients in the communities in which they worked, only some healthcare personnel purposefully sought out strategies to mitigate this barrier for patients. This included provision of opportunistic STI POC testing and considered use of language (e.g. 'offer that PCR test and explain that you test for everything'), rather than explicitly identifying the STIs being tested for (e.g. NG, CT), or focusing on risky behaviour. Opportunistic testing has been found to reduce shame associated with STIs, particularly among Aboriginal men presenting at health services.<sup>27</sup> Young Aboriginal peoples have reported that inclusion of opportunistic STI testing into routine health care or health checks reduces barriers through normalising testing.<sup>28</sup> However, it was viewed by some healthcare personnel that patient concerns regarding confidentiality continued to impede care engagement.<sup>9</sup>

Shame in a healthcare setting can significantly impact patients' willingness to seek care and disclose sensitive information,<sup>29</sup> further amplifying the importance of offering testing through use of normalising language. Healthcare workers can create a safe and non-judgmental environment where patients feel comfortable discussing sexual health. As evident in the data presented, this involves adopting an empathetic and accepting attitude, using inclusive language, and respecting patient autonomy and confidentiality.

Primary healthcare personnel in remote communities often have not received formal sexual health training.<sup>9</sup> This can result in a lack of knowledge on the part of the healthcare provider as to when to offer testing (e.g. opportunistically or risk-based) and, consequently, much of the workforce may lack the awareness or appropriate language to offer testing in a culturally appropriate way. Ultimately, this lack of training likely hinders pathways to testing and treatment. A targeted intervention, such as STI POC testing, in which health staff aim to 'test everyone' attending the clinic or test everyone in the community within a short time frame<sup>16</sup> and using appropriately trained staff, may mitigate some of these barriers. However, this would require a rollout of workforce training to upskill healthcare workers to effectively offer testing in a way that would encourage uptake by patients. The inclusion of culturally informed training on how to offer an STI test, incorporating culturally appropriate language, would enhance POC operator training.

Some participants reported that discussion of the STI POC test provided a starting point for dialogue with patients about their sexual health, thereby providing a pathway for sexual health education conversations. This aligns with 'best practice' research for patient-centred communication whereby providing information, supporting patients in decision-making, and enabling disease and treatment-related behaviour, enhances quality of care and improves patient outcomes.<sup>30</sup> As such, discussing available healthcare interventions with patients may provide multiple benefits, including reducing barriers to care while simultaneously empowering patients about their medical decision-making and autonomy in a culturally safe way.

Patient communication protocols were not limited to the clinical setting but often were extended into the community when returning results following POC testing. Although 90 min is regarded as 'timely' compared to an average of 10 days for CT/NG if relying on laboratory test results,<sup>20</sup> the experiences in remote communities concerning confidentiality considerations are complex, and suggest that some patients may still prefer to leave the clinic as soon as possible to protect their privacy; preferring to be located shortly thereafter in their community or by phone. A desire not to wait in healthcare services for STI POC test results is not unique to people in remote communities, with research suggesting that reduced wait time will better enhance the optimisation of POC testing as a diagnostic tool for reducing STI prevalence and transmission.<sup>31</sup> Thus, patient engagement regarding follow-up was still regarded as a critical piece to the testing puzzle.

Healthcare workers demonstrated engagement strategies that sought to develop healthcare patient-provider relationships built on trust and time spent with individuals and in the community.

Healthcare providers reflected on patient concerns about their confidentiality for STI testing and partner notification in the event of a positive result. Confidentiality concerns are routinely raised as a barrier to sexual healthcare engagement among Aboriginal and Torres Strait Islander peoples.<sup>9,14,32,33</sup> For example, although a benefit of STI POC testing has been deemed as enhancing timeliness of partner notifications,<sup>34</sup> the realities of partner notification are often nuanced and are further complicated in smaller communities. Healthcare providers demonstrated their capacity to understand the subtleties of partner notification and to engage in discussions with patients that prioritised patient safety while also facilitating clinical responses to partners requiring screening.

A systematic review found the four primary barriers to sexual health care included (1) cultural and societal views relating to sexual health; (2) stigma, discrimination and embarrassment; (3) lack of training and education among healthcare providers; and (4) quality of clinician-patient relationships.<sup>35</sup> This suggests that the successful strategies for patient communication protocols relating to sexual health identified in this paper may be applicable or transferable to other population groups.

A key limitation of this study is the absence of patient perspectives, which hinders a comprehensive understanding of patient experiences, preferences, and barriers to sexual healthcare engagement. Patient perspectives are crucial for identifying gaps in service provision, addressing cultural sensitivities, and tailoring interventions to meet the needs of Aboriginal and Torres Strait Islander communities. The current study's focus on healthcare personnel perspectives narrows the scope of inquiry. However, our findings are consistent with the literature, including patient-focused studies, in relation to barriers to sexual healthcare engagement among Aboriginal and Torres Strait Islander peoples.<sup>33</sup> Future research should engage Aboriginal and Torres Strait Islander peoples about the preferred language and approaches for being offered STI (POC) testing to foster greater testing uptake.

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## Conclusion

STI POC testing has previously been found to be acceptable among healthcare workers and patients within Aboriginal and Torres Strait Islander healthcare services.<sup>21</sup> Our findings indicate that patient safety is an important component of sexual healthcare engagement in Aboriginal and Torres Strait Islander communities, and language used by healthcare providers, particularly in relation to offering STI testing, can influence patient uptake of sexual health care. Integrating STI POC testing in routine/holistic health care, such as

opportunistic testing, can reduce shame and may allow for greater uptake of STI testing. However, same-day results may still require patient follow-up within the community (as preferred by the patient); appropriate follow-up should continue to ensure patient confidentiality is prioritised. Additionally, explanations of STI POC testing can help reduce patient-related barriers, such as shame and stigma, while also providing an opportunity for health education. Offering STI POC testing in a culturally safe and competent manner has the potential to increase the sexual healthcare engagement of Aboriginal and Torres Strait Islander peoples living in remote communities.

## References

- 1 Tsevat DG, Wiesenfeld HC, Parks C, Peipert JF. Sexually transmitted diseases and infertility. *Am J Obstet Gynecol* 2017; 216(1): 1–9. doi:10.1016/j.ajog.2016.08.008
- 2 Galvin SR, Cohen MS. The role of sexually transmitted diseases in HIV transmission. *Nat Rev Microbiol* 2004; 2(1): 33–42. doi:10.1038/nrmicro794
- 3 Kraft JM, Whiteman MK, Carter MW, Snead MC, DiClemente RJ, Murray CC, et al. Identifying psychosocial and social correlates of sexually transmitted diseases among black female teenagers. *Sex Transm Dis* 2015; 42(4): 192–197. doi:10.1097/OLQ.0000000000000254
- 4 World Health Organization. Guidelines for the management of symptomatic sexually transmitted infections. Geneva: World Health Organization; 2021.
- 5 ASHM. Australian STI Management Guidelines for Use in Primary Care: Aboriginal and Torres Strait Islander People. Sydney: Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine; 2021. Available at <https://sti.guidelines.org.au/populations-and-situations/aboriginal-and-torres-strait-islander-people/>
- 6 Ward J, Elliott S, Bryant J, Donovan B, Pitts M, Wand H, et al. THE GOANNA SURVEY 2. Results of the second Australian survey of knowledge, relationships, behaviour and health service access relating to sexually transmissible infections (STIs) and blood borne viruses (BBVs) among Aboriginal and Torres Strait Islander young people. Adelaide: South Australian Health and Medical Research Institute (SAHMRI); 2020.
- 7 National Aboriginal Community Controlled Health Organisation. Aboriginal Community Controlled Health Organisations (ACCHOs). Canberra: NACCHO; 2022. Available at <https://www.naccho.org.au/acchos/>
- 8 Australian Institute of Health and Welfare. Rural and remote health. Canberra: Australian Institute of Health and Welfare; 2024. Available at <https://www.aihw.gov.au/reports/rural-remote-australians/rural-and-remote-health>
- 9 Hengel B, Guy R, Garton L, Ward J, Rumbold A, Taylor-Thomson D, et al. Barriers and facilitators of sexually transmissible infection testing in remote Australian Aboriginal communities: results from the Sexually Transmitted Infections in Remote Communities, Improved and Enhanced Primary Health Care (STRIVE) Study. *Sex Health* 2015; 12(1): 4–12. doi:10.1071/SH14080
- 10 Wakerman J, Humphreys J, Russell D, Guthridge S, Bourke L, Dunbar T, et al. Remote health workforce turnover and retention: what are the policy and practice priorities? *Hum Resour Health* 2019; 17(1): 99. doi:10.1186/s12960-019-0432-y
- 11 Australian College of Rural and Remote Medicine. Accessing Primary Health Care in Rural and Remote Australia: overview, issues and solutions. Brisbane: Australian College of Rural and Remote Medicine; 2020. Available at [https://www.acrrm.org.au/docs/default-source/all-files/rural-and-remote-access-to-phc-background-paper-\(2020\).pdf?sfvrsn=22e70563\\_8](https://www.acrrm.org.au/docs/default-source/all-files/rural-and-remote-access-to-phc-background-paper-(2020).pdf?sfvrsn=22e70563_8)
- 12 Veginadu P, Russell DJ, Zhao Y, Guthridge S, Ramjan M, Jones MP, et al. Patterns of health workforce turnover and retention in Aboriginal Community Controlled Health Services in remote communities of the Northern Territory and Western Australia, 2017–2019. *Hum Resour Health* 2024; 22(1): 58. doi:10.1186/s12960-024-00942-9
- 13 Cassidy C, Bishop A, Steenbeek A, Langille D, Martin-Misener R, Curran J. Barriers and enablers to sexual health service use among university students: a qualitative descriptive study using the Theoretical Domains Framework and COM-B model. *BMC Health Serv Res* 2018; 18(1): 581. doi:10.1186/s12913-018-3379-0
- 14 Bell S, Aggleton P, Ward J, Murray W, Silver B, Lockyer A, et al. Young Aboriginal people's engagement with STI testing in the Northern Territory, Australia. *BMC Publ Health* 2020; 20(1): 459. doi:10.1186/s12889-020-08565-0
- 15 Russell DJ, Zhao Y, Guthridge S, Ramjan M, Jones MP, Humphreys JS, et al. Patterns of resident health workforce turnover and retention in remote communities of the Northern Territory of Australia, 2013–2015. *Hum Resour Health* 2017; 15(1): 52. doi:10.1186/s12960-017-0229-9
- 16 Guy R, Ward J, Smith KS, Su J-Y, Huang R-L, Tangey A, et al. The impact of sexually transmissible infection programs in remote Aboriginal communities in Australia: a systematic review. *Sex Health* 2012; 9(3): 205–12. doi:10.1071/SH11074
- 17 World Health Organization. Point-of-care tests for sexually transmitted infections: Target product profiles. Geneva: World Health Organization; 2023.
- 18 Causer LM, Hengel B, Natoli L, Tangey A, Badman SG, Tabrizi SN, et al. A field evaluation of a new molecular-based point-of-care test for chlamydia and gonorrhoea in remote Aboriginal health services in Australia. *Sex Health* 2015; 12(1): 27–33. doi:10.1071/SH14158
- 19 Guy R, Ward J, Causer LM, Natoli L, Badman SG, Tangey A, et al. Molecular point-of-care testing for chlamydia and gonorrhoea in Indigenous Australians attending remote primary health services (TTANGO): a cluster-randomised, controlled, crossover trial. *Lancet Infect Dis* 2018; 18(10): 1117–26. doi:10.1016/S1473-3099(18)30429-8
- 20 Causer LM, Ward J, Smith K, Saha A, Andrewartha K, Wand H, et al. Clinical effectiveness and analytical quality of a national point-of-care testing network for sexually transmitted infections integrated into rural and remote primary care clinics in Australia, 2016–2022: an observational program evaluation. *Lancet Reg Health West Pac* 2024; 48: 101110. doi:10.1016/j.lanwpc.2024.101110
- 21 Lafferty L, Smith K, Causer L, Andrewartha K, Whiley D, Badman SG, et al. Scaling up sexually transmissible infections point-of-care testing in remote Aboriginal and Torres Strait Islander communities: healthcare workers' perceptions of the barriers and facilitators. *Implement Sci Commun* 2021; 2: 127. doi:10.1186/s43058-021-00232-8
- 22 Ahluwalia SC, Damberg CL, Haas A, Shekelle PG. How are medical groups identified as high-performing? The effect of different approaches to classification of performance. *BMC Health Serv Res* 2019; 19(1): 500. doi:10.1186/s12913-019-4293-9
- 23 Liamputtong P. Qualitative research methods. 5th edn. Melbourne, Australia: Oxford University Press; 2020.
- 24 Braun V, Clarke V. Toward good practice in thematic analysis: avoiding common problems and becoming a knowing researcher. *Int J Transgend Health* 2023; 24(1): 1–6. doi:10.1080/26895269.2022.2129597
- 25 Martin B. Methodology is content: Indigenous approaches to research and knowledge. *Educ Philos Theory* 2017; 49(14): 1392–400. doi:10.1080/00131857.2017.1298034
- 26 Ubrihien A, Gwynne K, Lewis DA. Barriers and enablers for young Aboriginal people in accessing public sexual health services: a mixed method systematic review. *Int J STD AIDS* 2022; 33(6): 559–69. doi:10.1177/09564624221080365
- 27 Su J-Y, Belton S, Ryder N. Why are men less tested for sexually transmitted infections in remote Australian Indigenous communities? A mixed-methods study. *Cult Health Sex* 2016; 18(10): 1150–64. doi:10.1080/13691058.2016.1175028
- 28 McCormack H, Guy R, Bourne C, Newman CE. Integrating testing for sexually transmissible infections into routine primary care for Aboriginal young people: a strengths-based qualitative analysis. *Aust NZ J Publ Health* 2022; 46(3): 370–6. doi:10.1111/1753-6405.13208
- 29 Lobo R, Costa BD, Forbes L, Ward J. Young deadly free: impact evaluation of a sexual health youth peer education program in remote Australian communities. *Sex Health* 2020; 17(5): 397–404. doi:10.1071/SH20069

- 30 King A, Hoppe RB. “Best practice” for patient-centered communication: a narrative review. *J Grad Med Educ* 2013; 5(3): 385–93. doi:10.4300/JGME-D-13-00072.1
- 31 Rönn MM, Menzies NA, Gift TL, Chesson HW, Trikalinos TA, Bellerose M, *et al.* Potential for point-of-care tests to reduce Chlamydia-associated Burden in the United States: a mathematical modeling analysis. *Clin Infect Dis* 2020; 70(9): 1816–23. doi:10.1093/cid/ciz519
- 32 Graham S, Martin K, Gardner K, Beadman M, Doyle MF, Bolt R, *et al.* Aboriginal young people’s perspectives and experiences of accessing sexual health services and sex education in Australia: a qualitative study. *Glob Publ Health* 2023; 18(1): 2196561. doi:10.1080/17441692.2023.2196561
- 33 Harfield S, Purcell T, Schioldann E, Ward J, Pearson O, Azzopardi P. Enablers and barriers to primary health care access for Indigenous adolescents: a systematic review and meta-aggregation of studies across Australia, Canada, New Zealand, and USA. *BMC Health Serv Res* 2024; 24(1): 553. doi:10.1186/s12913-024-10796-5
- 34 Wi TE, Ndowa FJ, Ferreyra C, Kelly-Cirino C, Taylor MM, Toskin I, *et al.* Diagnosing sexually transmitted infections in resource-constrained settings: challenges and ways forward. *J Int AIDS Soc* 2019; 22(Suppl 6): e25343. doi:10.1002/jia2.25343
- 35 Ezhova I, Savidge L, Bonnett C, Cassidy J, Okwuokei A, Dickinson T. Barriers to older adults seeking sexual health advice and treatment: a scoping review. *Int J Nurs Stud* 2020; 107: 103566. doi:10.1016/j.ijnurstu.2020.103566

**Data availability.** To protect participant confidentiality, this data is not publicly available.

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#### Author affiliations

<sup>A</sup>Kirby Institute, University of NSW, Sydney, NSW, Australia.

<sup>B</sup>Poche Centre, University of Queensland, Brisbane, Qld, Australia.

<sup>C</sup>International Centre for Point-of-Care Testing, Flinders University, Adelaide, SA, Australia.

<sup>D</sup>School of Translational Medicine, Monash University, Melbourne, Vic, Australia.

<sup>E</sup>Melbourne Sexual Health Centre, Melbourne, Vic, Australia.

<sup>F</sup>Alfred Health, Melbourne, Vic, Australia.

<sup>G</sup>Western Australia Department of Health, Perth, WA, Australia.

<sup>H</sup>Aboriginal Health Council of Western Australia, Perth, WA, Australia.

<sup>I</sup>Aboriginal Health Council of South Australia, Adelaide, SA, Australia.

<sup>J</sup>Centre for Social Research in Health, University of NSW, Sydney, NSW, Australia.