

Challenges of providing HIV pre-exposure prophylaxis across Australian clinics: qualitative insights of clinicians

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Abstract. *Background:* HIV pre-exposure prophylaxis (PrEP) has been rapidly implemented in Australia, initially through restricted access in demonstration studies, and then through prescribing across sexual health clinics and general practice settings. In 2018, PrEP was publicly subsidised for people with Medicare (universal health insurance for citizens, permanent residents and those from countries with reciprocal arrangements). There is little research examining the experiences of PrEP providers in Australia, and existing research has been primarily conducted before public subsidy. *Methods:* In this qualitative study, we examine the challenges that have emerged for PrEP-providing clinicians after public subsidy for PrEP was introduced. We conducted 28 semi-structured interviews in 2019–20 with PrEP providers in two Australian states, and analysed data thematically. Participants included general practitioners (GPs), sexual health nurses and sexual health physicians. *Results:* Sexual health services have been reconfigured to meet changing patient demand, with an emphasis on ensuring equitable financial access to PrEP. Restrictions to nurse-led PrEP frustrated some participants, given that nurses had demonstrated competence during trials. GPs were believed to be less effective at prescribing PrEP, but GP participants themselves indicated that PrEP was an easy intervention, but difficult to integrate into general practice. Participants expressed discomfort with on-demand PrEP. *Conclusions:* Our findings indicate that supporting ways for patients without Medicare to access PrEP inexpensively, advocating for nurse-led PrEP, and developing guidelines adapted to general practice consultations could ensure that PrEP is delivered more effectively and equitably. Additionally, PrEP providers require encouragement to build confidence in providing on-demand PrEP.

Keywords: access, general practice, healthcare provider, HIV prevention, nurses, on-demand PrEP, pre-exposure prophylaxis.

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Introduction

Pre-exposure prophylaxis (PrEP) has been rapidly implemented in Australia, shifting from restricted provision through demonstration studies to general prescribing with public subsidy. Although the impact of PrEP on HIV notifications and behavioural trends is well documented in Australia,^{1,2} less is known about the challenges that clinicians have experienced with this shift in clinical provision of PrEP.

In Australia, PrEP demonstration studies provided PrEP access to study participants, primarily from specialist sexual health clinics.^{3–5} In 2018, tenofovir disoproxil fumarate and emtricitabine (TDF/FTC) and generic bioequivalents were publicly subsidised through the Australian Pharmaceutical Benefits Scheme. Public subsidy enables people with Medicare (Australia's universal healthcare program for citizens, permanent residents and people from countries with reciprocal arrangements) to purchase PrEP at a fixed co-payment of A\$6.60/month

(concession) or A\$41/month.^{6,7} People without Medicare can personally import PrEP from overseas pharmacies, which costs an average of A\$21/month.⁸ Personal importation still requires a prescription, and is an option supported by Australian PrEP guidelines.⁹ In Australia, sexual health services for men who have sex with men (MSM) are provided through a combination of publicly funded sexual health clinics and general practitioner (GP) services. In some jurisdictions, including our study contexts of New South Wales (NSW) and Western Australia (WA), there is a well-established inner-city network of 'gay friendly' services.^{10,11} Any GP can prescribe PrEP in Australia without specialist training.⁹ Sexual health clinics typically provide all services for free, including to people without Medicare,¹⁰ whereas GP consultations vary in cost, although they are subsidised for people with Medicare.⁶

Literature examining PrEP providers has investigated providers' attitudes, beliefs, and knowledge about PrEP, but

has mainly been conducted in the United States, which has a health system that is quite different from most other high-income nations.^{12–15} In the Australian context, minimal research has documented the perspectives of PrEP providers,^{3,5,16,17} although some has included PrEP providers as key informants or discussed provider-level factors in PrEP delivery.^{18–21} For example, key informants working in the Australian HIV sector have expressed concerns about whether GPs working in ‘mainstream’ settings would provide PrEP correctly or feel comfortable conducting the necessary sexual risk assessments.²¹ Similar to the USA, there has been a ‘purview paradox’ debate in Australia, discussing whether PrEP is best provided by specialist or primary care physicians.^{22–25} One study has focussed on Australian GPs and PrEP, and it found that GPs in North Queensland in 2017 reported willingness but low confidence in prescribing PrEP.¹⁶ Previous Australian research has revealed that it is difficult for GPs to develop HIV expertise due to lack of patient demand,^{26,27} and this may apply to PrEP prescribing.²¹

Nurse-led PrEP delivery models have been used in numerous international settings.^{5,28–30} Prior to PrEP, nurses already played a crucial role in HIV services in Australia.³¹ In the context of PrEP, nurse-led models were instrumental to the rapid enrolment of participants in Australian PrEP demonstration studies.^{3,5,32} Although nurses typically cannot write prescriptions in Australia, nurse-led PrEP was judged as feasible for demonstration studies in order to make them more cost-effective and efficient. Study protocols allowed nurses to provide PrEP through a standing order, or to ‘dispense’ it following prescription by a doctor.³² Although successful during the demonstration studies, it is not clear how nurse-led PrEP has been adapted following their completion. Nurse practitioners, nurses who have undergone advanced accreditation, are able to prescribe PrEP, but there are few sexual health nurse practitioners in Australia.³³

A key concern for the Australian HIV response has been improving equitable access to PrEP, especially for populations who experience barriers to accessing health care.^{5,19,20} In particular, although PrEP has resulted in a significant reduction in new HIV notifications among Australian-born MSM,² overseas-born MSM, especially from Central and South East Asia, account for a growing proportion of new HIV notifications,³⁴ and may have greater difficulty accessing PrEP due to Medicare ineligibility, and ‘cultural and language barriers’.^{35,36} Survey research shows that men without Medicare in Australia, particularly those born in Asian countries, are overrepresented among those who are willing to use PrEP, but are not actually using it.³⁷

The primary focus of PrEP delivery in Australia has been on daily PrEP, although on-demand dosing³⁸ has been included in guidelines as an option for cisgender MSM since 2018.^{9,39} Echoing the early Australian trials (which studied daily PrEP), MSM in Australia typically report using daily PrEP, although use of on-demand PrEP has grown over time.^{40,41} The international PrEP provider literature has rarely examined providers’ views about different dosing regimens.^{13,42}

Although important insights into clinical practices are generated through trial settings,⁴³ it is important to understand how these practices are then integrated into ‘real world’ clinical settings.⁴⁴ Given rapid rollout of PrEP, and growing levels of use,¹ Australia provides a pertinent setting in which challenges and solutions to PrEP provision can be explored. This article analyses clinicians’ experiences of providing PrEP in the context of workforce and regulatory challenges, including how services manage restrictions on who can prescribe and who can receive subsidised medication, debates on who is best suited to providing PrEP, and accommodating changes to PrEP dosing regimens.

Methods

The material presented here was collected as part of a doctoral study – PrEP in Practice: Clinician Perspectives on Prescribing PrEP in Australia. One of the primary aims of this study was to understand clinicians’ views about providing PrEP. The design, recruitment, and analysis have been discussed in more detail elsewhere.¹⁷

We conducted qualitative semi-structured interviews with PrEP providers, aiming to recruit a sample of clinicians working across clinical locations and settings, and with differing levels of PrEP experience. Participants were recruited in NSW and WA, because these two states have different HIV epidemics and histories of PrEP implementation.^{2,3} We advertised through newsletters and emails circulated to clinicians, including public sexual health clinics, directing potential participants to a study website. To be eligible, participants had to work in either NSW or WA, be aged ≥ 18 years, and have prescribed or dispensed PrEP at least once. Participants were offered compensation of A\$125 for their time, unless they were a publicly funded clinician unable to accept compensation.

All participants provided written or audio-recorded consent before interviews. The study was approved by the South East Sydney Local Health District Human Research Ethics Committee (ETH11638/2019), and the ACON Research Ethics Review Committee (RERC 2019/19).

Interviews were conducted by A.S. between October 2019 and July 2020 by telephone, videoconferencing, or in person, based on participant preference and location. Only four interviews were conducted after March 2020, when COVID-19 restrictions were introduced. Participants were asked about their clinical role, experiences of providing PrEP, and their views on other aspects of PrEP.¹⁷ On average, interviews lasted 1 h, ranging from 35 to 100 min. Interviews were audio-recorded, professionally transcribed, checked for accuracy and de-identified.

Transcripts were analysed using reflexive thematic analysis.⁴⁵ Although none of the authors had prescribed PrEP, A.S. previously worked alongside clinicians in a sexual health clinic for MSM in WA, and provided peer-based HIV testing, education, and PrEP navigation services to clients. Data were manually coded using QSR NVivo (12.6.0). In order to immerse himself in the data, A.S. re-listened to interviews, read through transcripts multiple times, and wrote summaries of each interview, sharing the

interview summaries with the study team. Following a mixture of deductive and inductive coding, A.S. then developed draft themes to collate patterns of meaning and conferred with the study team to refine and name the themes. As the themes were developed, A.S. checked back through data to ensure that the analysis reflected the participants' accounts.

Results

A total of 28 participants were interviewed, of which 26 were conducted over the phone, one face-to-face, and one through video conferencing. The characteristics of the sample are shown in Table 1. Doctors were assigned a primary speciality as either a GP or sexual health physician, but some were specialists in more than one area. The category of 'sexual health nurse' included registered nurse, clinical nurse consultant, clinical nurse specialist, and nurse practitioner. To ensure confidentiality when quoting participants, only their profession is reported; that is [P01 – Sexual Health Nurse].

The following themes describe a range of challenges in providing PrEP across sexual health and general practice settings, including: (1) prioritising equitable financial access in sexual health clinics; (2) changes to nurse-led PrEP; (3) challenges for general practice; and (4) discomfort with on-demand PrEP.

Prioritising equitable financial access in sexual health clinics

Following the public subsidy of PrEP and completion of demonstration studies, participants working in sexual health clinics described a process of referring patients with no access barriers (e.g. people with Medicare) to GPs for ongoing PrEP management. This ensured that PrEP delivery at their clinics could be focussed on patients with access barriers (e.g. people without Medicare), while also maintaining clinical services for non-PrEP sexual health services:

'So it was really managing, 'How do we get this PrEP to people as much as we want to, as much as we can, without compromising all the services we have to give everyone?' (P08 – Sexual Health Nurse)

In the context of Australia's growing proportion of HIV notifications in overseas-born MSM, participants viewed sexual health clinics (free services) as essential to providing equitable access to PrEP services. Given that a private script is expensive (unsubsidised it is at least A\$170/month at pharmacies), participants assisted patients without Medicare to personally import PrEP; however, relying on personal importation brought up logistical challenges, especially because shipping medications from overseas may be delayed, and patients may need to re-test for HIV before initiating PrEP:

'The biggest thing with non-Medicare patients is actually making sure that they've got that negative HIV test within seven days 'cause for PrEP access to be affordable for them, they need to order it from pan.org.au. So having that one-month follow-up appointment is really important to make sure that they are HIV negative and they're on PrEP.' (P21 – Sexual Health Nurse)

Table 1. Participant professional and demographic characteristics

	Participants (n)
Profession	
General Practitioner	12
Sexual health nurse	9
Sexual health physician	7
Jurisdiction	
New South Wales	18
Western Australia	10
Clinical location	
Inner city	14
Metropolitan or suburban	10
Regional or rural	4
Clinical setting	
Publicly funded sexual health clinic	14
General practice	10
Community based or non-governmental organisation (NGO) clinic	4
Number of PrEP discussions with patients (per week)	
Low volume: <2	7
Moderate volume: 3–10	10
High volume: 11+	11
Range	'1/month' to '50–60/week'
Years working in sexual health/HIV prevention (years)	
Average (mean)	10
Range	1.5–27
Decade of birth	
1950s	2
1960s	4
1970s	8
1980s	13
1990s	1
Decade of training	
1970s	1
1980s	5
1990s	7
2000s	11
2010s	4
Highest qualification	
Undergraduate degree	8
Postgraduate certificate or diploma	9
Master's degree	11
Gender identities ^A	
Cis woman or woman	20
Cis man or man	8
Sexual orientation	
Straight/heterosexual	15
Gay	5
Queer	2
Fluid	1
'I don't know'	1
Not answered	1
Cultural identities ^B (not mutually exclusive)	
Australian	15
White/Caucasian/Anglo	16
English-speaking overseas heritage	5
Non-English-speaking overseas heritage	9

^ANo non-binary or other genders reported.

^BNo participants identified as Aboriginal or Torres Strait Islander.

Some emphasised that although PrEP had been highly successful in reducing HIV notifications, this did not extend to all people that could benefit, and further efforts were still necessary to achieve equitable access to PrEP services:

'HIV rates aren't zero as a result of PrEP. And there's all these sort of projects going on to try and identify people who need PrEP, who aren't aware of PrEP. So the people we see know about PrEP, but there's a whole load of people who are not kind of aware of PrEP that are at risk of HIV acquisition.' (P22 – Sexual Health Physician)

Although participants expressed desire to promote awareness of PrEP to underserved populations, most were unsure of how this could be achieved. Reflecting on their clinical focus, participants described efforts to prioritise (free) appointments for people with access barriers (while referring those without barriers to general practice), as well as supporting patients without Medicare to navigate personal importation.

Changes to nurse-led PrEP

During demonstration studies, nurse-led PrEP enabled nurse participants to develop new skills and for clinics to *'adapt different models like express-type clinics, and dispensing it at an outreach site.'* (P25 – Sexual Health Nurse). Despite the efficiency of nurse-led PrEP, when demonstration studies finished, most nurses (except nurse practitioners) could no longer provide PrEP due to the regulations governing prescribing. Some participants reported that their clinics continued a version of trial study protocols by allowing nurses to conduct PrEP consultations, but this relied on prescribing clinicians to review cases and write prescriptions:

'We'll [nurses] see them and do their screen. And then we've got a recall system where, if they're still eligible to be on PrEP and they haven't had any problems with their meds [...] we will send a reminder to the doctor to review the results; HIV and eGFR [estimated glomerular filtration rate] are back within 24 hours so the doctor reviews those results and then writes the script, and either posts it to the person's home or we fax it to a pharmacy. Or the person can come back and pick it up themselves within a couple of days sort of thing. So that's how we manage it.' (P08 – Sexual Health Nurse)

Other participants reported a cessation of all nurse-led PrEP appointments, returning nurses to a focus on sexual health screening, and leaving PrEP provision to prescribers only. Although the role of nurses in providing PrEP was reduced, many sexual health nurses typically continued to provide some PrEP education to patients:

'It is a bit more doctor-driven outside of [demonstration study], but we still have nurses heavily involved and working with patients to help them come to their own decision [about] whether they want to commence PrEP and how they want to take PrEP.' (P17 – Sexual Health Nurse)

Despite a reliance on nurse-led PrEP in demonstration studies, the regulation of prescribing authority meant that sexual health clinics could no longer utilise the nursing workforce as effectively as they could under trial conditions. This frustrated a few nurse participants, who felt that they had proven they were capable of delivering PrEP, and could help with achieving greater efficiencies in the PrEP delivery system:

'We built a big study so well and upskilled nurses to be able to follow strict criteria to give this medication. Then we threw it out there and it's fucking... [it's] putting more burden on GPs and taking away great skills from nurses.' (P01 – Sexual Health Nurse)

To manage patient demand, which could no longer be met due to loss of nurse-led PrEP, and to maintain equitable access to PrEP services (see the above theme), referring a large proportion of PrEP patients (with Medicare) to GPs had become necessary within the confines of the existing regulatory system, and despite evidence of effective nurse-led prescribing models.

Challenges for general practice

Among GP participants, PrEP was viewed as relatively easy to manage, but difficult to integrate in general practice consultations, especially if trying to adhere to PrEP guidelines. P13 (GP) complained that PrEP guidelines were 'too complex', finding the laboratory evaluation tests at different intervals difficult to remember (e.g. baseline, 30 days post-initiation, and every 90 days), and therefore preferring to do all tests 'every 3 months' for simplicity. Although P26 (GP) liked to refer to guidelines, they observed that 'GPs are a bit guideline-overloaded', and P04 (GP) complained that '70-pages is impossible to read', but found the '2-page decision-making' tool derived from the guidelines valuable for general practice.⁹ Conversely, sexual health clinicians either liked the PrEP guidelines or did not discuss them. On average, GPs reported that PrEP initiation appointments lasted between 15 and 30 min, whereas participants working in sexual health clinics reported 30–60 min. Consequently, some GPs spoke about how a request for PrEP meant that they would often run late with subsequent appointments. A few GPs managed time efficiently by not conducting an extensive sexual history, relying on the patient's request for PrEP or indicators such as condomless sex to establish PrEP suitability. Although forgoing comprehensive detail, these GPs felt that conducting a minimal sexual history matched the expectations patients held for general practice, because *'people don't really expect a GP to be asking them where they are putting penises.'* (P05 – GP).

In addition to these challenges of providing PrEP in general practice consultations, a lack of patient demand in some contexts made it difficult for GPs to develop expertise in providing PrEP, despite their willingness to prescribe and their engagement with professional development:

'Every time after I've had a [PrEP] patient, I go home and I sign myself up for another [PrEP] webinar. And I get all excited after, thinking, 'Oh yes. I'm all good with it.' And

then I don't see another patient [for months]. And the next time I see another [PrEP patient], I think, 'Oh God, that's gone out of my brain.' (P04 – GP)

Further, participants described an incorrect perception among some other GPs that prescribing PrEP required speciality training with antiretrovirals,^{21,46} making them unlikely to initiate interest in prescribing.

Participants (including some GPs) were critical of GPs, reflecting complaints they heard from patients that some GPs were incorrectly managing PrEP, such as P15 (GP) who complained, *'I'm not so happy that there are GPs out there prescribing PrEP by just printing off a script and not having any knowledge behind what they should be screening for prior and how often they should be screening.'* Others, such as P08 (Sexual Health Nurse) reported that some patients had requested PrEP from a GP who 'flat-out refused' to prescribe it, leaving P08 to speculate about *'whether [GPs] don't know or whether they're just choosing to put their head in the sand.'* Some GPs had observed incorrect PrEP management in patient records by colleagues in their practice. Alongside these criticisms of GPs, participants were also sympathetic to the difficulties of GP education, pointing out that *'everybody wants to educate and train GPs'* (P02 – GP). GPs explained that it was impossible to become competent in all areas, and that it was sometimes better to refer patients to other clinicians when uncertain in a domain of medicine, even if technically part of the purview of general practice. At minimum, GP participants felt that other GPs should be able to refer to another competent clinician:

'In the wider community lots of people don't prescribe PrEP - although they could - because they're anxious about it, they don't understand it. They're concerned that they might miss something [...] if you're not comfortable with something it's reasonable not to do it, but try and know someone you can refer the patient to who is [comfortable with it].' (P26 – GP)

Although GPs can technically prescribe PrEP, they indicated it was difficult to build expertise with it due to lack of patient demand, which further reinforced a perception that PrEP was a specialist medicine, and resulted in a reliance on referrals to specialists. Conversely, although many sexual health clinicians had relied on GPs to manage the overflow of patients post-demonstration study, these clinicians did not trust GP PrEP provision.

Discomfort with on-demand PrEP

Participants across professions expressed discomfort with on-demand PrEP, citing concerns about it having less evidence of efficacy than daily dosing. Although some participants considered on-demand PrEP a useful option for patients in particular circumstances (e.g. patients who infrequently had sex), they held concerns about whether patients would be completely adherent, or able to *'plan ahead for sex'* (P24 – Sexual Health Nurse). Although suboptimal adherence for daily dosing was also discussed, participants were reassured by evidence showing that four out of seven doses per week was protective, whereas on-demand PrEP was seen to have more

potential 'room for error', as missing one dose could make it suboptimal:

'There's not a lot of room for error in terms of the alternative regimes. And that makes me a little bit nervous in terms of navigating that with patients, and especially if they're a little bit less informed and a little bit less self-motivated. How much of what we talk about do they take on board?' (P17 – Sexual Health Nurse)

Participants typically positioned on-demand PrEP as an inferior dosing regimen (compared with daily PrEP), but conceded that it was better to be patient-centred and support patients to use it well: *'I don't think that there's any utility in being hostile to it, as it just means people don't tell you what they're [going to] do.'* (P14 – Sexual Health Physician). However, a few believed that patients would find the regimen confusing and be unable to anticipate when they might be at risk:

'I discourage people from using it that way, generally speaking. My preferred dosing mechanism is take it every day. The sort of, on and off, on-demand [PrEP], I just find it confusing and for me too, it's difficult to expect someone to be able to realistically do that [...] Sometimes people ask, and I generally don't encourage them to, because I just don't really believe that many people can reliably manage their risk that way and make sure that they do that every single time.' (P28 – GP)

Others wanted more evidence of the on-demand regimen's efficacy, or in one case, dismissed on-demand PrEP as a regimen that *'people sort of read on a blog'* (P09 – Sexual Health Physician). Although Australian PrEP guidelines and online health information provide advice about (and support the use of) on-demand PrEP, some participants indicated that patients were receiving mixed messages about the legitimacy of on-demand PrEP from providers, including providers from the same clinics:

'Some of the patients have actually lost a little bit of confidence in the messages that they're getting [about PrEP dosing strategies] because of these mixed messages they're getting not just from clinicians, but advertising campaigns, what they're reading online, and what their friends are saying as well.' (P11 – Sexual Health Nurse)

Overall, on-demand PrEP was viewed as useful for specific circumstances and patients who were believed to be able to anticipate risk and be adherent, and participants therefore had reservations about its broader suitability and use.

Discussion

Through an analysis of interviews with Australian PrEP providers, our findings reveal that clinicians faced key barriers to the effective and equitable provision of PrEP. These challenges included lack of access to subsidised health care (Medicare), regulatory restrictions on prescribing rights, how to effectively provide PrEP in general practice settings, and discomfort with alternatives to daily dosing.

These findings confirm and extend the international literature on the 'purview paradox'^{3,21–25} in HIV care, with both explicit and implicit views communicated about which professionals are best qualified to deliver PrEP effectively. For example, despite relying on GPs to accept those PrEP referrals that sexual health clinics could no longer manage, sexual health clinicians were (often unfairly) sceptical of GP provision of PrEP, reproducing the long documented tendency to view HIV as an 'epidemic of complexities',⁴⁷ and a health condition best managed by those with extensive background in the area.⁴⁸ GPs, however, indicated that although the detailed prescribing guidelines were difficult to integrate into standard 15-min general practice appointments, often resulting in appointment delays, the clinical dimensions of prescribing PrEP were not necessarily difficult.²¹ The concern for ensuring equitable financial access to PrEP echoes the longstanding concern with equity in the international^{49,50} and Australian literature,^{20,37} which continues to shift as numbers of new infections decline, revealing ever more starkly who the populations are that are being left behind. Amidst these reconfigurations of services, participants were considering the expansion of PrEP dosing regimen options in Australia; that is, supporting alternatives to daily dosing. Participants' discomfort with on-demand PrEP suggested some paternalistic attitudes towards patients, suggesting distrust of patients' ability to follow alternative dosing schedules. As a major theme in the international literature on effective clinical care, trust in patients is an important condition of healthcare delivery, especially as part of shared decision-making.⁵¹ But this discomfort with on-demand PrEP also reflected participants' familiarity with daily dosing, which they had gained expertise in through demonstration studies, and suggested that supporting a different model of PrEP dosing would require further encouragement and education. It is worth noting that this apparent discomfort with on-demand PrEP echoes earlier concerns about daily PrEP, which was also met with caution, uncertainty, and some resistance.⁵²

Provider perspectives regarding on-demand PrEP have rarely been examined in the international literature, perhaps reflecting the more common implementation of daily dosing, particularly in English-speaking countries.^{13,42} Nurse-led PrEP has been shown to be a promising avenue for PrEP delivery,^{5,28–30,32} and there is a long history of nurses playing a critical role in the HIV response more generally in Australia.³¹ However, the requirement that only doctors (and nurse practitioners) can prescribe in Australia means that sexual health nurses have ended up playing a more restricted role in PrEP provision than in demonstration studies. Although literature on the purview paradox has focussed on the division between primary care and specialist care,^{3,21–25} which we also found, our participants also described a tension between who is allowed to prescribe PrEP (doctors and nurse practitioners) and who is not (most sexual health nurses). Prescribing rights are important to consider as a different dimension of the purview paradox. In striving towards greater accessibility of PrEP,^{20,35} giving nurses specific prescribing rights could increase the capacity of sexual health clinics to provide PrEP. Our findings support further exploring the dynamics of interprofessionalism in

contexts in which PrEP is being provided.⁵³ Given that nurses demonstrated the competencies to provide PrEP, but did not have the prescribing authority to provide PrEP outside of trial conditions, exploring the professional role boundaries in sexual health and PrEP provision services is also warranted.⁵⁴ In addressing disparities between different populations acquiring HIV in Australia – particularly MSM born overseas from Central and South East Asia^{35–37} – a public subsidy of PrEP for all Australian residents (temporary or permanent) would enable equitable financial access to PrEP. This study's findings extend the limited literature on understanding the clinical aspects of providing PrEP in Australia.^{3,5,16,17,21,43}

There are several limitations that must be taken into account in discussing the implications of these findings. The majority of participants were highly experienced in PrEP provision (although a few GPs held only minimal experience), which likely reflects the requirement that participants had provided PrEP at least once before interview. Also, qualitative interviews can only reflect specific participants' accounts of and reflections about their provision of PrEP and do not provide reliable data about what these clinicians actually do or say in everyday practice. Nonetheless, these findings address an important gap in the literature on provider perspectives on PrEP delivery in real-world, post-trial contexts in Australia, including gaps in PrEP provision and opportunities for further research.

Conclusions

Through this qualitative study, we identified key challenges for PrEP providers in Australia during the early period of public subsidy. Our analysis suggested important opportunities to optimise PrEP provision. Providers described gaps in the healthcare system, particularly in supporting patients without Medicare, and providers compensated for these gaps by prioritising free services through sexual health clinics for people with access barriers and assisting patients to import PrEP from overseas. Given that nurses had proven capacity to provide PrEP in demonstration studies, exploring ways for nurses to provide PrEP – which might require changes to prescribing authority – could enable sexual health clinics to provide more services to patients. To better support GP provision of PrEP, guidelines and resources specifically designed for shorter duration consultations would be beneficial. Finally, further work is needed to educate and support PrEP providers in Australia to feel confident in discussing and providing on-demand PrEP.

Conflicts of interest

Christy E. Newman is a Joint Editor of *Sexual Health*, but was blinded from the peer-review process for this paper. The authors declare no other conflicts of interest.

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References

- Holt M, Lee E, Lea T, Bavinton B, Broady T, Mao L, *et al.* HIV Preexposure Prophylaxis Cascades to Assess Implementation in Australia: Results From Repeated, National Behavioral Surveillance of Gay and Bisexual Men, 2014–2018. *J Acquir Immune Defic Syndr* 2020; 83(3): e16–22. doi:10.1097/QAI.0000000000002243
- Grulich AE, Guy R, Amin J, Jin F, Selvey C, Holden J, *et al.* Population-level effectiveness of rapid, targeted, high-coverage roll-out of HIV pre-exposure prophylaxis in men who have sex with men: the EPIC-NSW prospective cohort study. *Lancet HIV* 2018; 5(11): e629–37. doi:10.1016/S2352-3018(18)30215-7
- Sexual Health and Blood-Borne Virus Applied Research & Evaluation Network. PrEPIT-WA Service Provider Evaluation: Final Activity Report. Perth: School of Public Health, Curtin University; 2019.
- Zablotska IB, Selvey C, Guy R, Price K, Holden J, Schmidt H-M, *et al.* Expanded HIV pre-exposure prophylaxis (PrEP) implementation in communities in New South Wales, Australia (EPIC-NSW): design of an open label, single arm implementation trial. *BMC Public Health* 2018; 18(1): 210. doi:10.1186/s12889-017-5018-9
- Lazarou M, Fitzgerald L, Warner M, Downing S, Williams OD, Gilks CF, *et al.* Australian interdisciplinary healthcare providers' perspectives on the effects of broader pre-exposure prophylaxis (PrEP) access on uptake and service delivery: a qualitative study. *Sex Health* 2020; 17: 485–92. doi:10.1071/SH20156
- Glover L. International Health Care System Profiles: Australia. The Commonwealth Fund. 2020. Available online at: <https://www.commonwealthfund.org/international-health-policy-center/countries/australia>
- Australian Government Department of Health. Pharmaceutical Benefits: Fees, Patient Contributions and Safety New Thresholds. Pharmaceutical Benefits Scheme. 2020. Available online at: <https://www.pbs.gov.au/info/healthpro/explanatory-notes/front/fee>
- PrEPAccessNow (PAN). PrEP 101. n.d. Available online at: <https://www.pan.org.au/prep-101>
- The Australasian Society of HIV, Viral Hepatitis and Sexual Health Medicine (ASHM). PrEP Guidelines Update. Prevent HIV by Prescribing PrEP. 2019. Available online at: <https://www.ashm.org.au/HIV/PrEP/>
- Pell C, Donohoe S, Conway D. Health Care Services for men who have sex with men in different Australian states and territories since the emergence of HIV. *Sex Health* 2008; 5(2): 161. doi:10.1071/SH07101
- Newman CE, Persson A, Paquette DM, Kidd MR. The New Cultural Politics of the Waiting Room: Straight Men, Gay-Friendly Clinics and 'Inclusive' HIV Care. *Sex Res Soc Policy* 2013; 10(2): 87–96. doi:10.1007/s13178-013-0111-z
- Hillis A, Germain J, Hope V, McVeigh J, Van Hout MC. Pre-exposure Prophylaxis (PrEP) for HIV Prevention Among Men Who Have Sex with Men (MSM): A Scoping Review on PrEP Service Delivery and Programming. *AIDS Behav* 2020; 24(11): 3056–70. doi:10.1007/s10461-020-02855-9
- Pleuhs B, Quinn KG, Walsh JL, Petroll AE, John SA. Health Care Provider Barriers to HIV Pre-Exposure Prophylaxis in the United States: A Systematic Review. *AIDS Patient Care STDS* 2020; 34(3): 111–23. doi:10.1089/apc.2019.0189
- Silapaswan A, Krakower D, Mayer KH. Pre-Exposure Prophylaxis: A Narrative Review of Provider Behavior and Interventions to Increase PrEP Implementation in Primary Care. *J Gen Intern Med* 2017; 32(2): 192–8. doi:10.1007/s11606-016-3899-4
- Zhang C, McMahon J, Fiscella K, Przybyla S, Braksmajer A, LeBlanc N, *et al.* HIV Pre-Exposure Prophylaxis Implementation Cascade Among Health Care Professionals in the United States: Implications from a Systematic Review and Meta-Analysis. *AIDS Patient Care STDS* 2019; 33(12): 507–27. doi:10.1089/apc.2019.0119
- Lane W, Heal C, Banks J. HIV pre-exposure prophylaxis: Knowledge and attitudes among general practitioners. *Aust J Gen Pract* 2019; 48(10): 722–7. doi:10.31128/AJGP-02-19-4860
- Smith AKJ, Holt M, Haire B, Newman CE. Issues Associated With Prescribing HIV Pre-exposure Prophylaxis for HIV Anxiety: A Qualitative Analysis of Australian Providers' Views. *J Assoc Nurses AIDS Care* 2021; 32(1): 94–104. doi:10.1097/JNC.0000000000000219
- Holt M, Newman CE, Lancaster K, Smith AK, Hughes S, Truong H-HM. HIV pre-exposure prophylaxis and the 'problems' of reduced condom use and sexually transmitted infections in Australia: a critical analysis from an evidence-making intervention perspective. *Sociol Health Illn* 2019; 41(8): 1535–48. doi:10.1111/1467-9566.12967
- Hope A, Haire B. "No-one's driving this bus" - qualitative analysis of PrEP health promotion for Aboriginal and Torres Strait Islander gay and bisexual men. *Aust N Z J Public Health* 2019; 43(1): 18–23. doi:10.1111/1753-6405.12852
- Newman C, Hughes S, Persson A, Truong H-HM, Holt M. Promoting 'Equitable Access' to PrEP in Australia: Taking Account of Stakeholder Perspectives. *AIDS Behav* 2019; 23(7): 1846–57. doi:10.1007/s10461-018-2311-2
- Smith AKJ, Holt M, Hughes SD, Truong H-HM, Newman CE. Troubling the non-specialist prescription of HIV pre-exposure prophylaxis (PrEP): the views of Australian HIV experts. *Health Sociol Rev* 2020; 29(1): 62–75. doi:10.1080/14461242.2019.1703781
- Hoffman S, Guidry JA, Collier KL, Mantell JE, Boccher-Lattimore D, Kaighobadi F, *et al.* A Clinical Home for Preexposure Prophylaxis: Diverse Health Care Providers' Perspectives on the "Purview Paradox". *J Int Assoc Provid AIDS Care* 2016; 15(1): 59–65. doi:10.1177/2325957415600798
- Krakower DS, Mayer KH. The role of healthcare providers in the roll out of preexposure prophylaxis. *Curr Opin HIV AIDS* 2016; 11(1): 41–8. doi:10.1097/COH.0000000000000206
- Przybyla S, LaValley S, St. Vil N. Health Care Provider Perspectives on Pre-exposure Prophylaxis: A Qualitative Study. *J Assoc Nurses AIDS Care* 2019; 30(6): 630–8. doi:10.1097/JNC.0000000000000073
- Sullivan PS, Siegler AJ. Getting pre-exposure prophylaxis (PrEP) to the people: opportunities, challenges and emerging models of PrEP implementation. *Sex Health* 2018; 15(6): 522. doi:10.1071/SH18103
- Newman CE, de Wit JBF, Crooks L, Reynolds RH, Canavan PG, Kidd MR. Challenges of providing HIV care in general practice. *Aust J Prim Health* 2015; 21(2): 164. doi:10.1071/PY13119
- Newman CE, Kidd MR, Kippax SC, Reynolds RH, Canavan PG, de Wit JBF. Engaging nonHIV specialist general practitioners with new priorities in HIV prevention and treatment: qualitative insights

- from those working in the field. *Sex Health* 2013; 10(3): 193. doi:10.1071/SH12157
- 28 Clifford-Rashotte M, Fawcett N, Fowler B, Reinhart J, Tan DHS. Assessing the Potential for Nurse-Led HIV Pre- and Postexposure Prophylaxis in Ontario. *Can J Nurs Res* 2020. doi:10.1177/0844562120924269
 - 29 O'Byrne P, MacPherson P, Orser L, Jacob JD, Holmes D. PrEP-RN: Clinical Considerations and Protocols for Nurse-Led PrEP. *J Assoc Nurses AIDS Care* 2019; 30(3): 301–11. doi:10.1097/JNC.0000000000000075
 - 30 Vanhamel J, Rotsaert A, Reyniers T, Nöstlinger C, Laga M, Van Landeghem E, *et al.* The current landscape of pre-exposure prophylaxis service delivery models for HIV prevention: a scoping review. *BMC Health Serv Res* 2020; 20: 704. doi:10.1186/s12913-020-05568-w
 - 31 Hopwood M, Newman C, Persson A, Watts I, de Wit J, Reynolds R, *et al.* Expert perspectives on the contribution of HIV general practice nursing to the 'extraordinary story' of HIV medicine in Australia. *Prim Health Care Res Dev* 2014; 15(2): 180–9. doi:10.1017/S1463423613000108
 - 32 Schmidt H-MA, McIver R, Houghton R, Selvey C, McNulty A, Varma R, *et al.* Nurse-led pre-exposure prophylaxis: a non-traditional model to provide HIV prevention in a resource-constrained, pragmatic clinical trial. *Sex Health* 2018; 15(6): 595. doi:10.1071/SH18076
 - 33 Buckley T, Cashin A, Stuart M, Browne G, Dunn SV. Nurse practitioner prescribing practices: the most frequently prescribed medications. *J Clin Nurs* 2013; 22(13–14): 2053–63. doi:10.1111/jocn.12086
 - 34 Kirby Institute. HIV, viral hepatitis and sexually transmissible infections in Australia: annual surveillance report 2018. 2018. Available online at: <https://kirby.unsw.edu.au/report-type/annual-surveillance-reports>
 - 35 Keen P, Bavinton BR. Could disparities in PrEP uptake limit the public health benefit? *Lancet Public Health* 2020; 5(9): e467–8. doi:10.1016/S2468-2667(20)30183-3
 - 36 Walia AM, Fairley CK, Bradshaw CS, Chen MY, Chow EPF. Disparities in characteristics in accessing public Australian sexual health services between Medicare-eligible and Medicare-ineligible men who have sex with men. *Aust N Z J Public Health* 2020; 44: 363–8. doi:10.1111/1753-6405.13029
 - 37 MacGibbon J, Lea T, Ellard J, Murphy D, Kolstee J, Power C, *et al.* Access to subsidised healthcare affects HIV pre-exposure prophylaxis (PrEP) uptake among gay and bisexual men in Australia: results of national surveys 2013–19. *J Acquir Immune Defic Syndr* 2021; 86: 430–5. doi:10.1097/QAI.0000000000002572
 - 38 Molina J-M, Capitán C, Spire B, Pialoux G, Cotte L, Charreau I, *et al.* On-Demand Preexposure Prophylaxis in Men at High Risk for HIV-1 Infection. *N Engl J Med* 2015; 373(23): 2237–46. doi:10.1056/NEJMoa1506273
 - 39 Wright E, Grulich A, Roy K, Boyd M, Cornelisse V, Russell D, *et al.* Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine HIV pre-exposure prophylaxis: clinical guidelines. Update April 2018. *J Virus Erad* 2018; 4(3): 143–59. doi:10.1016/S2055-6640(20)30260-0
 - 40 Fraser D, Chan C, Vaccher S, Holt M, Prestage G, Zablotska-Manos I, *et al.* Report on the PrEP in NSW Transition Study, 2018–2020. 2020. Available online at: http://handle.unsw.edu.au/1959.4/unsworks_67663
 - 41 MacGibbon J, Lea T, Ellard J, Murphy D, Bear B, Kolstee J, *et al.* Attitudes to biomedical HIV prevention among Australian gay and bisexual men: Key findings from the PrEPARE Project 2019. 2019. Available online at: http://handle.unsw.edu.au/1959.4/unsworks_61623
 - 42 Power M, Lewis DA, Richardson D. On-demand HIV pre-exposure prophylaxis: what are the healthcare workers' barriers to delivery in a culturally and linguistically diverse population? *Sex Transm Infect* 2020; 96(7): 549. doi:10.1136/sextrans-2019-054393
 - 43 Zablotska IB, O'Connor CC. Preexposure Prophylaxis of HIV Infection: the Role of Clinical Practices in Ending the HIV Epidemic. *Curr HIV/AIDS Rep* 2017; 14(6): 201–10. doi:10.1007/s11904-017-0367-7
 - 44 Golub SA, Myers JE. Next-Wave HIV Pre-Exposure Prophylaxis Implementation for Gay and Bisexual Men. *AIDS Patient Care STDS* 2019; 33(6): 253–61. doi:10.1089/apc.2018.0290
 - 45 Braun V, Clarke V. Reflecting on reflexive thematic analysis. *Qual Res Sport Exerc Health* 2019; 11(4): 589–97. doi:10.1080/2159676X.2019.1628806
 - 46 Newman CE, de Wit JBF, Kippax SC, Reynolds RH, Canavan PG, Kidd MR. The role of the general practitioner in the Australian approach to HIV care: interviews with 'key informants' from government, non-government and professional organisations. *Sex Transm Infect* 2012; 88(2): 132–5. doi:10.1136/sextrans-2011-050130
 - 47 Persson A, Newman CE, Hopwood M, Kidd MR, Canavan PG, Kippax SC, *et al.* No Ordinary Mainstream Illness: How HIV Doctors Perceive the Virus. *Qual Health Res* 2014; 24(1): 6–17. doi:10.1177/1049732313514139
 - 48 Newman CE, Reynolds R, Gray R, Canavan P, De Wit J, McMurchie M, *et al.* Surviving an epidemic – Australian GPs on caring for people with HIV and AIDS in the early years. *Aust Fam Physician* 2013; 42(10): 734–8.
 - 49 Hayes R, Schmidt AJ, Pharris A, Azad Y, Brown AE, Weatherburn P, *et al.* Estimating the 'PrEP Gap': how implementation and access to PrEP differ between countries in Europe and Central Asia in 2019. *Euro Surveill* 2019. 24(41): doi:10.2807/1560-7917.ES.2019.24.41.1900598
 - 50 Kay ES, Pinto RM. Is Insurance a Barrier to HIV Preexposure Prophylaxis? Clarifying the Issue. *Am J Public Health* 2020; 110(1): 61–4. doi:10.2105/AJPH.2019.305389
 - 51 Douglass T, Calnan M. Trust matters for doctors? Towards an agenda for research. *Soc Theory Health* 2016; 14(4): 393–413. doi:10.1057/s41285-016-0010-5
 - 52 Arnold EA, Hazelton P, Lane T, Christopoulos KA, Galindo GR, Steward WT, *et al.* A Qualitative Study of Provider Thoughts on Implementing Pre-Exposure Prophylaxis (PrEP) in Clinical Settings to Prevent HIV Infection. *PLoS One* 2012. 7(7): e40603. doi:10.1371/journal.pone.0040603
 - 53 Reeves S, Lewin S, Espin S, Zwarenstein M. Interprofessional teamwork for health and social care. Oxford: Wiley-Blackwell; 2010.
 - 54 King O, Nancarrow SA, Borthwick AM, Grace S. Contested professional role boundaries in health care: a systematic review of the literature. *J Foot Ankle Res* 2015. 8(1): doi:10.1186/s13047-015-0061-1

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