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SEXUAL HEALTH

Top Abstracts of the Joint Australasian Sexual Health and HIV & AIDS Conferences

Held 29 August–1 September 2022 at the Sunshine Coast Convention Centre

Contents

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Prevention, epidemiology and health promotion on HIV and/or sexual health in the Australasian region

18. Evaluating the impact and cost-effectiveness of chlamydia management strategies in Hong Kong: a modelling study
19. Findings from the first national migrant blood-borne virus and sexual health survey 2020–2021
20. Remote Aboriginal-led primary care services integrate testing for sexually transmitted infections into comprehensive annual preventive health assessments in regions with highest prevalence
21. Illicit drug use and sexual risk behaviours: results of GOANNA1 and GOANNA2 Surveys
22. Dashboarding: using improvement science + implementation science to improve screening rates of STI + BBV in Aboriginal medical services
23. The uptake of *Trichomonas vaginalis* testing and positivity in Aboriginal Community-Controlled Health Services attendees across remote, regional, and urban Australia

Discovery and translational science, biology, resistance and pathogenesis

24. Development of a novel human oral tissue model of gonorrhoea
25. Novel causes of urethritis in men

Introduction

For 30 years, the Joint Australasian Sexual Health and HIV&AIDS Conference have brought together delegates from Australia, New Zealand, Asia, and the Pacific. The conference is coordinated by ASHM and the Australasian Sexual and Reproductive Health Alliance (ASRHA), bringing together a wealth of knowledge and diverse local and global perspectives – from science, clinical medicine and allied health to community-led programs, indigenous health, policy and social research. This year, the conference will be held face-to-face at the Sunshine Coast Convention Centre, Queensland, from 29 August to 1 September. We are pleased to share the top-scoring conference abstracts with the readership of *Sexual Health*.

All abstracts submitted for consideration in the 2022 Joint Australasian HIV&AIDS and Sexual Health Conferences Program were independently reviewed by three experts on a range of criteria. These results were aggregated and presented to the National Program Committee who used the scores and feedback from reviewers to select which presentations would be accepted into the program. These scores also determined the top abstracts within each theme.

Some of the key objectives of the conference are to:

- To provide the foremost annual educational and networking forum for those working or interested in the blood-borne virus, sexual, and reproductive health sectors, primarily in Australia, New Zealand and the Asia and Pacific regions (i.e. Australasia), to present and stay informed on current research, clinical management, prevention, best practice healthcare, health promotion and policy, including opportunities for professional development and activities which meet relevant accreditations.
- To develop a program that appeals to the multidisciplinary and diverse audience working or interested in the blood-borne virus, sexual, and reproductive health sectors and reflects the changing environment for the care, management, and prevention of HIV, other blood-borne viruses and sexually transmissible infections (STIs).
- To facilitate dialogue, collaboration and networking among researchers, community representatives, jurisdictional policy decision-makers, and the health workforce from various geographic, demographic, and professional sector partners across Australasia. This also includes connecting leading global experts with the Australasian delegates, e.g. through invited keynote speakers.
- To support and engage community and lived experience delegates to ensure that the conference is accessible, relevant, and adapted for their needs and promote meaningful dialogue across multiple disciplines.
- To recognise and build sector leadership through awards, invited presentations, conference organising committees, abstract reviewing, chairing sessions and abstract presentations.
- To implement ASHM's Reconciliation Action Plan and strengthen the engagement, relevance and address the inequities among Aboriginal and Torres Strait Islander and other First Nation peoples.

HIV – Social, political and cultural aspects of HIV and sexual and reproductive health in the Australasian region

I Sexual satisfaction among people living with HIV in Australia: enduring impacts of HIV-related stigma

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Background: People living with HIV (PLHIV) have historically faced a range of challenges negotiating satisfying sex lives in the context of virus-transmission risks and HIV-related stigma. We examine the experience of sexual satisfaction in an era of PrEP and U = U.

Methods: Data are derived from HIV Futures 9, a cross-sectional survey of PLHIV in Australia conducted between December 2018–May 2019. Multivariable logistic regression was used to identify factors independently associated with sexual satisfaction, including awareness of/engagement with U = U and PrEP as well as experiences that denote HIV-related stigma.

Results: In total, 689 participants reported on their sexual satisfaction, of whom 57% reported they were not satisfied with their sex life (56.5% gay/bi men; 58.9% women). Those who experienced sex partners rejecting them based on their HIV status were significantly more likely to report sexual dissatisfaction compared to those who had not had this experience. Those who avoided sex because of their HIV status were also more likely to report sexual dissatisfaction, as were those who were over 50 and those with worse self-reported health. Participants who expressed a concern about their drug use were more likely to report sexual dissatisfaction compared to those who expressed no such concern. There were no differences in sexual satisfaction according to gender, sexuality, time since diagnosis, viral load, PrEP use by sexual partners, awareness of U = U and confidence in biomedical technologies to prevent transmission.

Conclusion: The right to a satisfying sex life does not end at the point of an HIV diagnosis. While there is documented evidence of biomedical prevention technologies helping to alleviate anxiety relating to sex among many PLHIV and their partners, HIV-related stigma still remains a live concern. Acts of rejection, as well as internalised stigma, continue to have a significant and negative impact on the enjoyment of sex for those living with HIV.

Disclosure of interest statement: This study was funded by the Australian Department of Health.

2 Experiences of, and resistance to, disclosing positive HIV status to potential sex partners

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Background: Rejection of people living with HIV (PLHIV) by sexual partners has been comprehensively documented (de Wit *et al.* 2013). Recent research also found only a minority of HIV-negative gay men on pre-exposure prophylaxis (PrEP) were comfortable with condomless sex with HIV-positive partners (even if partners had an undetectable viral load [UVL]) (Holt *et al.* 2018). To date, little research has been undertaken on how PLHIV anticipate and negotiate expectations and outcomes related to disclosure in sexual contexts.

Methods: Data were collected as part of an ongoing qualitative cohort study of 34 PLHIV diagnosed from 2016 onward in Australia. Drawing on in-depth interviews conducted between January 2019 and November 2021, we analysed participants' experiences of disclosure and non-disclosure of HIV status to (potential) sex partners.

Results: The median age was 32.5 years; with the majority (32/34; 94%) male, and 91% identifying as gay or bisexual. Participants' accounts revealed several strategies related to disclosing HIV status, based on context and familiarity, and also 'risks' of negative outcomes. Many participants had experienced rejection by potential partners due to their HIV status (despite having UVL and/or potential partners being on PrEP). Participants' accounts also revealed ambivalence around disclosure, with UVL and changes to legal framings drawn on to challenge expectations that PLHIV should disclose their HIV status in sexual settings (especially on hook-up apps). Participants also provided insights into their own attitudes and expectations prior to their diagnosis, with many reporting they'd been uncomfortable with the idea of sex with HIV-positive partners, and that their knowledge of UVL and treatment as prevention had been limited.

Conclusion: Non-disclosure can be read as both a practical response to other risks associated with sex for PLHIV (i.e. exposure, judgement, and the possibility of rejection), and as active resistance (Green 2021) to expectations of disclosure in sexual settings.

Disclosure of interest statement: The first author receives funding from Viiv Healthcare for an unrelated study. The current study was funded through an NHMRC Partnership Grant (APP1134433: Developing and implementing systems to optimise treatment, care and support among people diagnosed with HIV.) This study is also supported by funding from: New South Wales Ministry of Health; Northern Territory Department of Health; Queensland Department of Health; South Australian Department of Health and Ageing; Tasmanian Department of Health and Human Services; Victorian Department of Health and Human Services; Western Australian Department of Health.

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HIV – Clinical management and therapeutics: managing HIV and/or sexual health, related infections and co-morbidities

3 Preferences for weight gain compared with other antiretroviral therapy side effects among people living with HIV: a discrete choice experiment

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Background: Antiretroviral (ARV) side effects are a critical determinant of adherence among people living with HIV (PLWH). Integrase Strand Transfer Inhibitors (INSTIs) are the most commonly used ARV but have recently been reported to cause weight gain. We aimed to determine the relative importance of weight gain compared to other ARV side effects for PLWH.

Methods: We conducted a discrete choice experiment (DCE) survey to explore PLWH's preferences for eight short-term side effects (e.g. weight gain, diarrhoea, depression) and for four long-term side effects (e.g. long-term weight gain and risks of heart attack). We sent a link to an anonymous survey through short message service (SMS) and postcards to PLWH attending Melbourne Sexual Health Centre (MSHC) and the Alfred Hospital in Victoria, Australia, between July and August 2021. The choice data were analysed using random parameter logit (RPL) and latent class (LCM) models.

Results: A total of 335 respondents were included: most were male (88.1%), and the mean age was 49.7 years. In the RPL analyses, PLWH ranked the relative importance of short-term ARV side effects as follows (from most important to least important): depression, weight gain, headache, diarrhoea, sleep, nausea, fatigue; and for long-term side effects as follows: risk of heart attack, kidney problem, weight gain and risk of bone fracture. In the LCM analyses, 23.9% were most sensitive to short-term weight gain, while 16.0% were most sensitive to long-term weight gain.

Conclusions: Overall, weight gain was the second most important among eight short-term side effects and the third most important among four long-term side effects in a cohort of Australian PLWH. However, there was a significant minority who were most sensitive to weight gain as a side effect of ARVs. We recommend that clinicians should actively discuss the possibility of weight gain for all PLWH taking ARVs.

Disclosure of interest statement – industry: None. This work was supported by the National Health and Medical Research Council (NHMRC) [GNT1193955 to J.J.O.; GNT1172873 to E.P.C.F. and GNT1172900 to C.K.F.].

4 Pre-exposure prophylaxis and renal impairment in aboriginal and Torres Strait Islander Australians

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Background: Aboriginal and Torres Strait Islander (hereafter respectfully referred to as Indigenous) peoples are recognised as priority populations for the prevention and management of HIV, including pre-exposure prophylaxis (PrEP). All PrEP regimens currently subsidized in Australia contain tenofovir disoproxil, a potential nephrotoxin. This may be of particular concern for Indigenous Australians who have higher prevalence of renal disease overall, and therefore may warrant increased monitoring or the recommendation of alternative PrEP regimens.

Aim: To compare the rates of new or worsening renal impairment in Indigenous and non-Indigenous Australians receiving PrEP in the Australian ACCESS network comprising sexual health and general practice clinics, and some hospitals.

Methods: A retrospective analysis of individuals commencing PrEP in 55 clinics across Australia between Jan 2010 and Dec 2020 was conducted. Patients were followed from commencement of PrEP for new renal impairment, defined as a glomerular filtration rate (eGFR) < 60 mL/min/1.73 m^2 and/or a reduction in eGFR of >25% from baseline established over a testing interval of three months. Statistical comparisons were by logrank or Chi-square test.

Results: 476 Indigenous and 9727 non-Indigenous Australians commenced PrEP at participating clinics and were followed for a median of 1.7 years (IQR: 1.2–2.0). The rate of new or worsening renal impairment was 3.8 events/1000 person-years (95% CI: 1.2–11.8) for Indigenous people as compared to 5.1 events/1000 person-years (95% CI: 4.1–6.2, $P = 0.643$) for non-Indigenous Australians. A greater proportion of Indigenous Australians were aged 40–49 or >50 years than non-Indigenous Australians ($P < 0.001$), but rates of pre-existing renal impairment were similar ($P = 0.187$).

Conclusion: New onset or worsening renal impairment was rare in patients commencing PrEP in Australian clinics. Aboriginal and Torres Strait Islander Australians do not appear to be at higher risk than non-Indigenous persons and increased monitoring or the use of alternative PrEP regimens is likely not warranted.

Disclosure of interest statement: No relevant interests to declare.

HIV – Prevention, epidemiology and health promotion on HIV and/or sexual health in the Australasian region

5 Missed opportunities for HIV testing among those tested for sexually transmitted infections: a systematic review and meta-analysis

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Background: Of 37.7 million people living with HIV in 2020, 6.1 million still do not know their HIV status. We synthesise evidence on concurrent HIV testing among people who tested for other sexually transmitted infections (STIs).

Methods: We conducted a systematic review (Prospero: CRD42021231321) using five databases, HIV conferences and clinical trial registries. We included publications between 2010 and May 2021 that reported primary data on concurrent HIV/STI testing. We conducted a random-effects meta-analysis and meta-regression of the pooled proportion for concurrent HIV/STI testing.

Results: We identified 96 eligible studies: the majority (73%) were from high-income countries (HIC), with a third from general populations (36%) and non-heterosexual populations (30%). Among the 96 studies, 18 studies had relevant data for a meta-analysis for the proportion of people tested for HIV among those attending an STI service, 15 studies among those tested for other STIs, 13 studies among those diagnosed with STI and three studies for people with STI symptoms. The pooled proportion of people tested for HIV among those attending an STI service ($n = 18$ studies) was 71.0% [95% confidence intervals: 61.0–80.1, I2 = 99.9%], people tested for HIV among those who were tested for STIs ($n = 15$) was 61.3% [53.9–68.4, I2 = 99.9%], people tested for HIV among those who were diagnosed with an STI ($n = 13$) was 35.3% [27.1–43.9, I2 = 99.9%] and people tested for HIV among those presenting with STI symptoms ($n = 3$) was 27.1% [20.5–34.3, I2 = 92.0%]. The meta-regression analysis found that heterogeneity was driven mainly by identity as a sexual minority, the latest year of study, country-income level and region of the world.

Conclusion: Not testing for HIV amongst clients using STI services presents a significant missed opportunity, particularly among those diagnosed with an STI. Stronger integration of HIV and STI services is urgently needed to improve prevention, early diagnosis, and linkage to care services.

Disclosure of interest statement: EPFC and JJO are each supported by an Australian National Health and Medical Research Council (NHMRC) Emerging Leadership Investigator Grant (GNT1172873 and GNT1193955, respectively). CKF is supported by an Australian NHMRC Leadership Investigator Grant (GNT1172900).

6 Can smart vending machines expand access to HIV testing for suboptimal testers? RAPIDVend: an implementation and evaluation study

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Background: HIV self-testing (HIVST) offers novel opportunities to access testing in non-clinical settings, particularly for suboptimal testers. RAPIDVend developed, implemented, and evaluated HIVST dissemination and uptake via smart vending machines (SVM).

Methods: SVM were installed at two urban sex-on-premises-venues in October 2021 and a regional university in February 2022. On completion of a Pre-Vend Consent Survey via a purpose-built microsite or directly on SVM interface, participants received a one-off code to access one free ATOMO® HIV-antibody HIVST kit. 7-days post-vend, participants were telephoned by a Peer Test Facilitator (PTF) and SMSed a Post-Vend Survey link.

Results: Of 223 HIVST kits dispensed, 39 (18%) were first-time testers and 40 (18%) had not tested for >12-months; 100 (45%) requests occurred at the SVM interface. Most of the 196 (87%) who provide a postcode resided in major Australian cities (161; 83%). Non-metropolitan residents were 5 times more likely to be first-time testers (Odds ratio 4.9, 95% confidence interval 2.1–11.9). At 7-days post-vend, PTF made contact with 175 (78%) participants, 6 (3%) reported device error, 5 (3%) user error, 8 (5%) had not used the kit. Participants reported "it's an excellent program", "easy, convenient, discreet", "needs to be rolled out over more locations". Most of the 38 Post-Vend Survey respondents identified as gay (23; 61%) or bisexual (9; 24%) males (35; 92%); 11 (29%) were born overseas. Twelve (39%) of the 31 (82%) reporting anal sex had ≥5 anal sex partners in the last 6-months. Convenience (34; 90%), privacy/anonymity (24; 63%), no time to go elsewhere (10, 26%), and not having to wait for results (19; 50%) were primary reasons for using the SVM. HIVST was preferred to clinic-based testing (26; 68%). Six (16%) were unwilling to pay for a kit; 23 (61%) would pay ≤AUD$20.

Conclusion: Key target populations, including first-time and infrequent testers and regional residents, accessed HIVST via vending machines. Financial barriers need addressing to embed HIVST in the suite of testing options.

Disclosure of interest statement: This research was funded by a Gilead Fellowship and conducted under the auspice of the Queensland Professorial Chair of BBV and STI.

7 NSW is approaching virtual elimination of HIV transmission among gay and bisexual men in inner Sydney, and geographical variation is consistent with patterns in HIV prevention indicators

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Background: The headline target of the NSW HIV Strategy 2021–25 is a 90% reduction in the rate of preventable HIV infection (virtual elimination), with specific targets for HIV testing, PrEP and net prevention coverage (NPC, comprising the proportion of HIV-negative gay and bisexual men (GBM) using an effective form of HIV prevention).

Methods: We examined trends in HIV diagnoses among GBM, based on HIV notifications data, and trends in HIV testing, PrEP and NPC in those at risk, based on data collected in the Sydney Gay Community Periodic Survey, between 2015 and 2021. We examined trends state-wide, and in 3 postcode-defined strata, based on the estimated proportion of the adult male population who identify as gay: >20% ('inner Sydney'); 5–19% (Sydney 'middle ring' suburbs); and <5% ('elsewhere'). We examined differences in prevention indicators between postcode groupings in 2021 using chi-squared tests for linear trends.

Results: Between 2015 and 2021, HIV diagnoses among GBM in NSW declined by 52.3% overall (from 285 to 136), and by 82.7%, 47.4%, and 40.5% in inner Sydney, middle ring postcodes, and elsewhere, respectively. In 2021, HIV testing in the last 12 months was higher in inner Sydney (90.2%) than the middle ring (83.7%) and elsewhere (75.3%, $P < 0.001$). A similar geographical pattern was seen for PrEP use (82.8%, 71.5% and 50.4%, $P < 0.001$) and NPC (88.1%, 83.3% and 70.4%, $P < 0.001$).

Conclusion: HIV diagnoses among GBM in NSW declined by over half between 2015 and 2021, with the greatest reduction in inner Sydney, where the reduction approached the Strategy target of 90%. In 2021, prevention indicators were all higher in inner Sydney, intermediate in the middle ring, and lower elsewhere. HIV notifications are approaching levels consistent with virtual elimination in inner Sydney. Achieving this success state-wide requires additional effort to increase uptake of prevention strategies among GBM elsewhere.

Disclosure of interest statement: The HIV PRISM Partnership is funded by a NHMRC Partnership Project Grant (GNT2006448) and the NSW Ministry of Health. The Sydney Gay Community Periodic Survey is funded by the BRISE program of the NSW Ministry of Health and a NHMRC Partnership Project Grant (GNT2002625). The Centre for Social Research in Health and Kirby Institute are supported by the Australian Government Department of Health. No pharmaceutical grants were received for this study.

8 Factors predicting intention for on-demand HIV pre-exposure prophylaxis (PrEP) dosing among gay and bisexual men in Australia

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Background: Many gay and bisexual men (GBM) in Australia have intermittently increased their sexual contacts following the easing of COVID-19 restrictions, but they may view daily PrEP use as unwarranted. Messaging about on-demand PrEP dosing may be an appropriate intervention at this time. Using cohort data, we investigate intention to use, and factors that predict on-demand PrEP dosing.

Methods: Between May 2020 and December 2021, 880 non-HIV positive GBM in Australia responded to a monthly questionnaire on the impact the COVID-19 had on their PrEP use and sexual behaviours, including intention for future PrEP dosing. We used the Andersen-Gill extensions to the Cox proportional hazards model for multivariable survival data to predict factors influencing the intention to use on-demand PrEP.

Results: The median age of the sample was 44.0 (range 21–84). Between July 2020 and December 2021, the preference for on-demand increased from 4.9% to 31.9% (tests for linear trend was significant at $P = 0.03$).

In multivariable analysis, GBM were more likely to report an intention to use on-demand PrEP if: they engaged in condomless anal intercourse with non-relationship partners (CLAI-NR) (aOR: 1.85; 95% CI: 1.11–3.10), including without the use of PrEP (aOR: 1.88; 95% CI: 1.26–2.81); and scored higher on measures of HIV-related anxiety (aOR: 1.09; 95% CI: 1.04–1.14). However, men were less likely to report an intention to use on-demand PrEP if: they lived outside of NSW (aOR: 0.16; 95% CI: 0.47–0.92). Age ($P = 0.111$), number of sexual partners ($P = 0.875$), country of birth ($P = 0.557$) did not predict intention for on-demand PrEP use.

Conclusion: GBM who engage in CLAI-NR are increasingly interested in on-demand PrEP use, particularly if they are anxious about HIV transmission, regardless of their age or country of birth. NSW men were more likely to want to use on-demand PrEP. On-demand messaging addresses a need for many at-risk GBM.

Disclosure of interest statement: The Australian Government Department of Health funds the Kirby Institute, UNSW Sydney. This study received funds from the New South Wales Ministry of Health via the Prevention Research Support Program and the NSW Research Program for HIV, STIs and Viral Hepatitis. Funders had no input in the data collection, analysis, interpretation, or presentation of any findings. The authors have no conflict of interest to declare.

HIV – Discovery and translational science, biology, resistance and pathogenesis

9 Plasma IgA inhibits HIV-specific IgG Fc functions of viremic controllers and HIV progressors

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Background: The importance of antibody Fc functions was highlighted in the human HIV RV144 vaccine trial, however, plasma IgA reduced vaccine efficacy and antibody Fc functions. Plasma IgA can engage with the Fc alpha receptor (FcαR) to activate or inhibit protective Fc functions. Here we endeavored to determine if plasma IgA influences the Fc capacity of IgG from HIV progressors, viremic controllers (VCs) or bnAbs.

Methods: IgA and IgG was purified from 33 HIV ART naïve VCs, 41 progressors and 10 healthy individuals. Systems serology approaches including the assessment of HIV-specific antibodies, antibody-dependent neutrophil phagocytosis (ADNP) and FcαR affinity were utilized to determine the effect of plasma IgA on IgG Fc functions. This was further validated by spiking autologous purified IgA with purified IgG from HIV individuals or BnAb PGT121 within respective functional assays.

Results: Plasma IgA concentrations were significantly elevated in HIV progressors ($P < 0.01$). Furthermore, spiking of autologous purified IgA significantly inhibited ADNP (20%) of HIV progressor IgG ($P < 0.01$) but not VCs. Intriguingly, inhibition was also observed when HIV-negative IgA was added, suggesting a non-HIV epitope inhibitory mechanism. Similarly, IgA inhibited Fc function of the BnAb PGT121 by 23%. The percentage of IgA-mediated inhibition correlated with FcαR engagement, suggesting inhibition occurs via the FcαR. Addition of FcαR block to these assays reconstituted Fc function, suggesting that IgA inhibition is mediated through IgA-FcαR binding.

Conclusion: We demonstrate that plasma IgA can reduce the functional capacity of anti-HIV IgG from HIV progressors and to a lesser extent VCs. This inhibition was confirmed to be mediated by IgA-FcαR engagement. Future work aims to assess the acute IgA response within HIV individuals to determine if the inhibitory effect of IgA is inherently present. Understanding the mechanisms behind IgA inhibition of Fc responses could lead to improved future HIV vaccine design and educate passive transfer monoclonal antibody therapies.

Disclosure of interest statement: This study was supported by the NHMRC and amfAR grants.

10 RNA-directed epigenetic silencing protects humanised mice during HIV challenge

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Background: The block and lock HIV functional cure approach aims to block virus transcription and lock the latent reservoir in a super-latent state, resistant to reactivation. We have previously shown short interfering (si)RNAs therapeutics induce potent HIV silencing using this approach in various cell lines in vitro and in primary CD4+ T cells in vivo, when delivered as a gene therapy using shRNA-transduced CD34+ haematopoietic stem cells, in a humanized mouse model of HIV-1 infection. We have extended this study to include RNAscope and immunostaining analysis to determine the potential protective effect in HIV tissue reservoirs, including lymph nodes and spleen.

Methods: Human CD34+ cells were transduced using GFP-labelled lentivirus expressing the promoter-targeted shRNAs, shPromA or dual construct shPromA/shCCR5, mock-transduced or empty shRNA-transduced and transplanted into irradiated NSG mice. Transduction efficiencies ranged between 40–70%. At 17 wks post-engraftment, mice expressing GFP-CD4+ T cells were challenged with CCR5-tropic HIV-1JR-FL. and bled at wks 3, 5, 7 and 10 post-infection (p.i.). Mice were then treated with ART for 8 wks, followed by an ART interruption to measure virus rebound for 4 wks prior to sacrifice and assessment of CD4+ T cells/GFP expression by flow cytometry, viral load using RT-qPCR and RNAscope/immunostaining analysis of virus RNA in CD4+ T cells located in lymph node and spleen tissue.

Results: Transduced mice expressing shPromA or dual shPromA/shCCR5 showed up to 90% CD4+ GFP expression, which correlated with a >1 log increase in CD4+ T cell numbers compared to mock in blood, spleen and bone marrow at sacrifice. Following ART interruption, we also observed a delay in virus bound in the gene modified shPromA and dual shPromA/shCCR5 mouse groups compared to mock. RNAscope/immunostaining also indicated a reduction in virus located in CD4+ T cells in the lymph nodes in dual shPromA/CCR5 gene modified mouse groups and in spleen tissue in the shPromA gene modified mouse groups.

Conclusion: This is the first study to demonstrate a delayed virus rebound induced by anti-HIV RNA therapeutics and the reduction of virus-infected CD4+ T cells in the HIV latent reservoir lymph and spleen tissue sites. These exciting data further support the block and lock approach for achieving a permanent HIV cure.

Disclosure of interest statement: CA, AK hold siRNA patents. All other authors report no conflict of interest. This work was funded by NHMRC Program Grant 1149990. No pharmaceutical grants were received in the development of this work.

Sexual Health – Social, political and cultural aspects of HIV and sexual and reproductive health in the Australasian region

11 Australian parents support school-based relationships and sexuality education: findings from the First National Survey

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Background: Despite significant worldwide evidence that parents support school-based delivery of relationships and sexuality education (RSE), Australian data has generally lacked larger, nationally representative samples. Such data is vital, as perceptions of parental attitudes are known to influence RSE delivery.

Methods: An online survey examined the attitudes of Australian parents towards school-based RSE. Items closely replicated a recent Canadian study, and a market research company was engaged to recruit a representative sample.

Results: Data was collected from 2,247 parents (56.5% female) nationwide. Most had a child enrolled in a government school (65.3% primary, 55.7% secondary); reporting diverse religious affiliations (38.7% no religion, 21.3% Catholic, 11.1% Anglican) and voting preferences (26.7% Australian Labor Party, 25.1% Liberal/Coalition, 23.6% undecided). Overall, 89.9% of parents supported the provision of school-based RSE (female > males, $P = 0.04$), with some state/territorial differences. Islamic parents ($P = <0.001$) and those who deemed religion to be very important ($P = <0.001$) were least supportive. Supporters of the Australian Labor Party were more likely to endorse RSE than supporters of other parties ($P = 0.04$). Parents strongly endorsed schools to address a range of RSE-related topics ($n = 40$), and even topics with the lowest levels of support were extremely well supported overall: information about masturbation (87.0%), gender identity (86.0%) and sexual pleasure (84.0%). Grades 7–8 were nominated as the most appropriate time to commence lessons. Most parents rated the quality of current RSE delivery to be very good/good (47.5%), however 21.0% were unsure if RSE was currently being addressed by their child's school. Open-ended comments revealed a negligible but vitriolic level of dissent.

Conclusion: Australian parents are overwhelmingly supportive of school-based RSE, with some notable differences associated with gender, locality, religion, political affiliation, grade level for implementation and RSE topic. These findings support RSE advocacy efforts and contest overstated levels of parental dissent.

Disclosure of interest statement: This research was supported by the Western Australian Department of Health, Communicable Disease Control Directorate, Sexual Health and Blood-borne Virus Program. We also acknowledge and thank the Canadian research team who provided permission for us to adapt their survey instrument, and the participants who responded to our survey.

12 Youth cybersafety, relationships and sexuality: piloting a whole school approach to educate young adolescents

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Background/purpose: Early adolescence is a time when young people become more interested in their developing sexuality and becoming increasingly independent in their online engagement and social relationships. The online world is rich with opportunities learning and personal development; but also poses significant risks. Many families and schools feel ill-equipped to broach these topics, resulting in avoidance and missed opportunities to support young people's understanding of positive, safe and consensual online socialising, sexuality and relationships.

Approach: *The Youth Cybersafety*, *Relationships and Sexuality* project addresses this gap through the co-design, piloting and evaluation of an integrated educational program for Victorian schools, families and young people aged 10–14 years. The program includes professional development and resources for school teachers and leaders; a podcast series, videos and workshop for parents/carers; and (3) student education sessions.

Outcomes/impact: This program has been developed in consultation with key stakeholders to ensure relevancy, relatability and meaningful impact. The program evaluation will draw on feedback gathered via online surveys and focus groups from teachers, students and parents after participating in the program.

This presentation will provide educators with insights about the development of a comprehensive whole school approach to promoting young people's safe and positive engagement with the online world. We will reflect on the challenges, learnings and successes encountered during development and piloting, present initial findings from the program evaluation, and explore implications for broader implementation of whole schools approaches to cybersafety and sexuality education.

Innovation and significance: This program addresses a recognised gap in online safety and comprehensive sexuality education for young adolescents, to equip them with the skills, knowledge and mindset to interact online safely and positively. The impact of this program is strengthened through the provision of education for teachers and parents, to facilitate conversations with, and increase young people's understanding of online safety.

Disclosure of interest statement: This pilot program is funded by an Online Safety Grant from the Australian Office of the eSafety Commissioner.

13 Older women in the oldest profession: a qualitative retrospective life course analysis

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Background: Much research with sex workers continues to focus on communicable disease prevention, but rarely is sex work contextualised within career trajectories. Little is known about the work history or experiences of middle-aged and older women engaged in sex work, but such understanding is important in order to build on strengths and address challenges for this largely hidden population.

Methods: Using a participatory, peer-led methodology, we conducted semi-structured interviews at six urban and regional Queensland locations with 24 cisgender female sex workers aged between 50–70. Interviews were analysed thematically and using individual life grids that mapped career transitions and other life events.

Results: Older female sex workers have diverse career histories. Four patterns were identified: lifetime sex work; interrupted sex work; mid-career commencement and late-career commencement. Finances, work flexibility and becoming single often motivated starting sex work, while interruptions were often triggered by starting new relationships or stigma management. Participants' experiences of sex work after 50 were shaped by their career history and circumstances, with participants who commenced sex work in their late 40s and 50s more easily integrating sex work into their lives and retirement planning, while longer-term sex workers were more prone to isolation, sex work burnout, declining earnings, and fewer alternative work opportunities. Challenges were compounded by occupational stigma, discrimination and policing that affected dual careers, finances, relationships and social connections across their lives.

Conclusion: For health practitioners, meaningful engagement with sex workers may be strengthened by contextualising sex work within broader career pathways. Further policy development work still remains to address workforce participation inequities for women engaged in sex work.

Disclosure of interest statement: None of the authors have any conflicts of interest to be disclosed. The research is self-funded by the first named author, who receives a national research and training scholarship to cover tuition fees and a living allowance stipend during her PhD.

14 Let's talk: young women and non-binary peoples' experience of sex education in Australia

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Background: This research project is the second iteration of a report first developed in 2015, by the Young Women's Advisory Group (YWAG) to the Equality Rights Alliance, to platform young women and non-binary peoples' experiences of sex education in Australia. In 2019–2020, YWAG surveyed over 1000 young women and non-binary youth aged 16–21 nationally about their experiences of sexuality and relationships education at school. Additionally, the survey captured young people's understanding of and engagement with sexually explicit communication.

Methods: The experiences and opinions of young women and non-binary people were captured through a survey. The data was collected and was cross-referenced according to age, location, language/s spoken, gender, sexuality, disability, cultural background, and Indigeneity. A blend of quantitative and qualitative analysis was completed, aiming to answer questions regarding how sex education is taught in Australian schools and the experiences of young people.

Results: Sex education being taught by schools does not cater to students needs or experiences. Neither the content nor the learning experience reflected the expansiveness and intersectionality of young people in Australia. Students with diverse gender identities experienced both overt and implicit discrimination in both formal content and informal teaching environments. In 2019, 59% of participants reported that they had not learnt anything from their sex education classes in school that had helped them in their experiences of sex, and 78% reported they had not learnt anything that has helped them in their experiences of dating and relationships.

Conclusion: Young people want comprehensive, inclusive, accessible, age appropriate and relevant sex education. These research findings will be used to advocate for legislative reform and funding dedicated to providing Comprehensive Relationships and Sex Education in all schools.

Disclosure of interest statement: None.

Acknowledgement of funding: The Young Women's Advisory Group (YWAG) to the Equality Rights Alliance (ERA) is funded by the Office for Women, Australian Federal Government. The writers received payment for the compilation of a Report associated with this research project.

Sexual Health – Clinical management and therapeutics: managing HIV and/or sexual health, related infections and co-morbidities

15 Urgent results management by a dedicated nurse rather than the ordering clinician saves money and improves client care: a cost-effectiveness and time efficiency analysis

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Background/purpose: Efficient and timely management of test results for sexually transmitted infections (STIs) is an essential component of STI control. We conducted an evaluation to estimate the cost and time efficiencies of utilising a specialist results nurse (RN) to manage all urgent results on behalf of the ordering clinician at Sydney Sexual Health Centre (SSHC).

Approach: We analysed time stamp for all urgent results managed by the RN over 12 months in 2019 to determine average time to client notification and treatment. As a control group, a range of clinicians were tasked with managing five of their own urgent results and a time efficiency analysis undertaken. Clinic activities were estimated based on rostering and staff interviews. Activity based costing was applied to estimate the annual operating costs for both models.

Outcomes/impact: 9624 urgent results were managed by the RN, which included all positive STI results and other pathology requiring urgent action according to SSHC protocol. The most common results were Chlamydia (3058, 32%), Gonorrhoea (2378, 25%) and Syphilis (1739, 18%). Seventy-four percent of results were provided on the day they became available, with one day median time to treatment. In the Ordering Clinician (OC) model, 41% of results were provided on the same day with four days median time to treatment. The RN model demonstrated significant time efficiencies due to the centralisation of duties and provided an annual health system savings of AUD 121 524. These savings were driven by the cost effective nurse-led approach which also decreased the weekly workload of other clinicians by 20.1 nurse hours, 9.9 junior medical officer hours and 3.3 senior medical officer hours allowing for more time seeing patients.

Innovation and significance: This study demonstrates the success of a nurse-led results model in terms of improved time to client notification and treatment, and health system savings. In an era where optimising healthcare costs and improving outcomes for healthcare consumers is considered essential, these findings contribute to literature showcasing the effectiveness of nurse-led models.

Disclosures of interest statement: None.

16 Impact of near-to-patient STI testing on clinical practice: the Neptune study

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Background: Presumptive treatment leads to antibiotic overuse and misuse in STI syndromes and sexual contact of STIs. Furthermore, STIs like *Mycoplasma genitalium* (MG) have acquired such high levels of antibiotic resistance that resistance testing is required to guide care. We aimed to determine if near-to-patient-testing for *Neisseria gonorroheae* (NG), *Chlamydia trachomatis* (CT) and MG (plus macrolide-resistance-mutation) would improve appropriate prescribing and reduce antibiotic overuse in patients with non-gonococcal urethritis (NGU), suspected proctitis and pelvic inflammatory disease (PID), STI-contacts of the three STIs, and in patients attending for MG test-of-cure (TOC). Assay performance and timely STI-specific partner notification were also measured.

Methods: From March–December 2021, enrolled patients attending MSHC underwent standard STI testing by transcription-mediated amplification (Aptima, Hologic) and PCR (MGResistancePlus, SpeeDx) and near-to-patient-testing using the GeneXpert system (Cepheid). We calculated the proportion with an STI detected among those who presented 1) with an STI syndrome, 2) as an STI-contact, or 3) for MG-TOC. Patients with an STI were sent an SMS the following day asking how many sexual partners they notified.

Results: 870 patients were recruited (representing 975 consults). Using near-to-patient-testing, an STI was detected in 63/252 (25.0%) with NGU (12.3% CT; 2.8% NG; 11.3% MG), 18/51 (35.3%) with proctitis (9.8% CT; 21.6% NG; 11.8% MG) and 5/51 (9.8%) with pelvic pain (2.0% CT; 2.0% NG; 5.8% MG). Of 527 STI-contacts, only 34.7% had an STI detected by near-to-patient-testing. MG was detected in 35/161 (21.7%) MG-TOC presentations. 173/276 with an STI detected reported partner-notification via SMS; 95.4% notified all/some sexual partners and 85.9% of these notifications occurred <24 h of receiving the STI result.

Conclusion: Bacterial STIs were detected in fewer than a third of patients with STI syndromes or STI contacts, highlighting how presumptive treatment leads to antibiotic overuse and the need for timely aetiologic treatment strategies. Near-to-patient-testing resulted in rapid and high rates of STI specific partner-notification.

Disclosure of interest statement: Cepheid and SpeedX provided testing kits and loaned the GeneXpert machines for this trial. This trial was funded by an ARC ITRP Hub Grant Project ID IH190100021. CSB and CSK are supported by an Australian NHMRC Leadership Investigator Grant (GNT1173361 and GNT1172900, respectively). DEW, JJO and EPFC are each supported by an NHMRC Emerging Leadership Investigator Grant (GNT1174555, GNT1193955 and GNT1172873, respectively).

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17 Australian general practitioner provision of medical abortion services: a national survey of knowledge, attitudes and practice

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Background: In Australia, only 10% of general practitioners (GPs) are certified to prescribe early medical abortion (EMA) medication and it is unknown how many actively provide this care. To understand GP's approach to provision of EMA care, this study sought to investigate knowledge, attitudes and practices of Australian GPs regarding EMA provision.

Methods: The Australian Contraception and Abortion Primary Care Practitioner Support Network (AusCAPPS) study is a mixed-methods project aiming to improve access to long-acting reversible contraception and EMA services. A national online survey of GPs was undertaken from July to October 2021 to explore their EMA knowledge, attitudes and practices. Data were analysed using counts and proportions.

Results: From the 500 GPs who completed the survey, 78% ($n = 388$) identified as female. Over half ($n = 270$; 54%) were from metropolitan areas, and most resided in Victoria ($n = 156$; 31%) or New South Wales ($n = 148$; 30%). Over half (54%, $n = 272$) felt they had the knowledge to provide EMA counselling, and 32% did not ($n = 159$). However, only a third ($n = 144$; 28.8%) felt confident to dispense EMA medications, whilst two-thirds did not ($n = 299$; 59.8%). EMA service delivery via telehealth was almost negligible ($n = 41$; 8%). About 22% ($n = 111$) provided an EMA service, and 23% ($n = 116$) were registered prescribers of EMA medication. Of those GPs providing EMA services, an average of 5 EMAs (SD = 10.6) were delivered per month.

Conclusion: Despite the critical role GPs play in supporting women's sexual and reproductive health care, relatively few provide EMA services. Further support for the integration of abortion care, including via telehealth, is required to enhance access to these services particularly in rural areas.

Disclosure of interest statement: This study was funded by an NHMRC partnership grant #APP1191793 with support from government, nongovernment, professional and pharmaceutical organisations.

Sexual Health – Prevention, epidemiology and health promotion on HIV and/or sexual health in the Australasian region

18 Evaluating the impact and cost-effectiveness of chlamydia management strategies in Hong Kong: a modelling study

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Background: Discussions for chlamydia control have shifted from population-based screening towards strengthening patient management. We aimed to illustrate the epidemiologic and cost-effectiveness impact of shifting from population-based screening towards a targeted management approach for genital chlamydia infection.

Methods: We constructed an individual-based, stochastic, dynamic network model for chlalmydia based on Hong Kong's sexually active population of reproductive age (age 18–49 years). We evaluated the change of chlamydia prevalence before and after implementing the different implementations of universal vs. targeted screening. We also explored the impact of [1] screening only, [2] screening plus expedited partner therapy, and [3] screening plus partner testing. The cost-effectiveness analysis reports total direct cost from a health provider perspective, the QALYs gained, and incremental cost-effectiveness ratios (ICER).

Results: In comparing the effects of universal screening only and targeted screening of the high-risk population, the mean prevalence during the tenth year of intervention was 2.75 ± 0.30% and 2.35 ± 0.21%, respectively (compared with 3.24 ± 0.30% and 3.35 ± 0.21% before the interventions, respectively). The addition of contact tracing to the latter targeted screening scenario reduces the mean prevalence during the tenth year of intervention to 1.48 ± 0.13% (compared with 3.31 ± 0.33% at baseline) in the best-case of testing before treatment and maximal contact-tracing effectiveness (40%). Overall, the most effective scenarios were those for which interventions focused on the high-risk population defined by the number of partners, with contact tracing included. The ICER for targeted screening with contact tracing at 20% and 40% efficiency was $4634 and $7219 per QALY gained, respectively (10-year time horizon). Expedited partner therapy did not significantly impact overall chlamydia prevalence and caused overtreatment.

Conclusion: Our study suggests that targeted screening with strengthened contact tracing efforts is the most cost-effective strategy to reduce the prevalence of chlamydia in Hong Kong.

Disclosure of interest statement: No conflicts of interest to declare.

19 Findings from the first national Migrant Blood-borne Virus and Sexual Health Survey 2020–2021

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Background: Migrants are a priority population for the prevention and control of sexually transmissible infections (STIs) and blood-borne viruses (BBVs) but are under-represented in research on the subject. The Migrant Blood-borne Virus and Sexual Health Survey (MiBSS) was the first national STI and BBV knowledge, attitudes, and practices survey collecting information from migrants in Australia.

Methods: An online and paper-based survey was developed, pretested, and administered to South-East Asian, North-East Asian, and Sub-Saharan African-born migrants in five Australian states between September 2020 and June 2021.

Results: The final sample comprised 1465 migrants. Almost all respondents (94%) had heard of HIV but only one-third knew that HIV testing is not included in all blood tests. PrEP knowledge was low amongst respondents (15%).

Around one-quarter of respondents had heard of hepatitis B and understood what it was; however, of those, 56% thought the virus could be transmitted by contaminated food or water. Of respondents reporting knowing about hepatitis C, 27% knew there is a cure and 60% believed a vaccine was available.

56% of respondents whose last sexual encounter was with a casual partner reported using a condom. Amongst those reporting having sex during overseas travel since January 2018, 44% reported always condoms during those encounters.

Less than half of newly arrived migrants and sexually active migrants under the age of 30 were tested in accordance with ASHM National Testing Guidelines. When asked about their reaction to opportunistic testing, only 11% reported being 'offended' by the offer.

Conclusion: The findings suggest that interventions are needed to improve knowledge and awareness in this priority population, especially around HIV testing practices, PrEP awareness, the distinction between different forms of viral hepatitis, and the importance of condom use during casual sex and overseas travel. Health providers should be encouraged to increase offers of opportunistic testing.

Disclosure of interest statement: This project was funded by the Australian Research Council, with additional financial contributions from the Western Australian Department of Health, the South Australian Department of Health, the Victorian Department of Health, SHINE SA, and Curtin University. An ASHM Sexual Health Research Grant was also obtained to extend the project to Queensland.

20 Remote aboriginal-led primary care services integrate testing for sexually transmitted infections into comprehensive annual preventive health assessments in regions with highest prevalence

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Background: The multi-jurisdictional response to the syphilis outbreak affecting remote Aboriginal communities includes priority actions to increase testing. Annual health assessments incentivised for Aboriginal and Torres Strait Islander people under Medicare Item 715 provide an opportunity for routine STI testing in primary care. We examined integration and completeness of STI testing within health assessments for Aboriginal and Torres Strait Islander young people aged 16–29 years in Aboriginal Community Controlled Health Services.

Methods: Using routinely collected electronic medical record data from a national sentinel surveillance system (ATLAS), we performed a cross-sectional analysis to calculate the proportion of health assessments (2018–2020) that integrated tests for any or all of chlamydia, gonorrhoea, syphilis, and HIV. We used logistic regression to assess correlations between integration and socio-demographics.

Results: Of 13 892 health assessments conducted between 2018–2020, 23.9% integrated a test for any STI and 11.5% integrated all four. Of health assessments that included a chlamydia test, the proportion that also included a syphilis test increased in very remote regions between 2018 and 2019 (from 76.83% to 85.89%) with no change in remote, regional, or metropolitan regions. Integration was associated with patient aged 20–24 years (OR 1.23, 95% CI 1.13–1.38) and 25–29 years (OR 1.13, 95% CI 1.02–1.23) compared to 16–19 years, and patient residing in very remote (OR 4.17, 95% CI 3.65–4.77), remote (OR 2.44 95% CI 2.13–2.8) and regional areas (OR 2.51, 95% CI 2.15–2.8) compared to metropolitan. There was no association with patient sex.

Conclusion: Integration of STI testing into health assessments is higher in regions where disease burden is greatest. Increased testing in very remote regions reflects targeted impact of health promotion and other components of the multi-jurisdictional syphilis response. While most studies have found higher testing among women, integration of testing into health assessments is similar for men and women.

Disclosure of interest statement: None.

21 Illicit drug use and sexual risk behaviours: results of GOANNA1 and GOANNA2 surveys

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Background: Aboriginal and Torres Strait Islander youths are disproportionally affected by higher rates of sexually transmissible infections (STI) compared to the Australian non-Indigenous youth. Literature supports associations between drug use and STI diagnosis however, little is known on these correlations in the Indigenous population.

Methods: Two successive self-administered cross-sectional surveys of 4220 Indigenous youth aged 16–29: GOANNA1 (2011–2013) and GOANNA2 (2017–2020). Questions covered: demographics, sexual health literacy, health service access, risky sexual behaviours, cigarette smoking, alcohol and drug consumption. Multivariable Poisson regressions models for binary outcomes were used to estimate the relative rate (RR) and corresponding 95% confidence intervals (CI) for drug use (none/1 drug type/2+ types) and high-risk behaviours and STI diagnosis. Descriptive statistics and measure the association between the high-risk behaviours and STI diagnosis as the outcome.

Results: From GOANNA1 to GOANNA2, drug use increased by 14% overall, and by 26% within the 16–19-year-old group; STI testing, and positivity rates remained similar in both surveys. Drug use was strongly associated with most high-risk sexual behaviours and history of STI positivity, overall and in both surveys, and across all subgroups defined by sex and age. Further, there was a significant positive dose response association between number of different drugs used and increased rate of each outcome. Associations were strongest among the 16–19-year-old group for never having used condoms, condoms not used in the previous 12 months, and particularly, for past positive STI result (1 drug type versus none, RR (95% CI): 1.52 (1.00, 2.29); 2+ drug types versus none: 2.9 (2.0–4.0)).

Conclusions: The strong relationships between illicit drug use, sexual risk behaviours and self-reported past STI diagnosis, seen among this population, suggest the importance of delivering closely aligned services for sexual health and alcohol and other drugs (AOD) problems and targeted STI screening of youth with AOD problems.

Disclosure of interest statement: None. The GOANNA studies were funded by the Australian Department of Health.

22 Dashboarding: using improvement science + implementation science to improve screening rates of STI + BBV in aboriginal medical services

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Background/purpose: The ATLAS Indigenous Primary Care Surveillance Network extracts service level data from Aboriginal Medical Services (AMS) through their Electronic Medical Record (EMR). The data is deidentified and used for surveillance, monitoring, evaluation, and impact of STI and BBV prevalence across Australia to drive better, more precise clinical care.

Approach: The clinical data establishes a baseline, and the AMS is supported to integrate Continuous Quality Improvement (CQI) activities, defined and led by the AMS. The AMS accesses the ATLAS data via a secure online dashboard to evaluate service provision and provide evidence to support an improvement, and then uses systems thinking to embed the change at service level, feeding back and translating the knowledge into practice through systems change.

Outcomes/impact: Using the principles of improvement, ATLAS works with AMS stakeholders to analyse and interpret the service data. The dashboard's analyses stimulate opportunities for improvement in the way services provide STI and BBV care, addressing 12 key performance measures across several clinical domains. These are based on national clinical guidelines and further developed by the ATLAS investigator group.

Innovation and significance: The ATLAS network's establishment of an innovative, interactive dashboard embodies the principles of Indigenous data sovereignty. The dashboard, exclusive to ATLAS network members, provides a necessary tool that strengthens capacity and supports CQI. The dashboard supports Aboriginal and Torres Strait Islander leaders to make decisions that achieve better health outcomes.

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23 The uptake of *Trichomonas vaginalis* testing and positivity in Aboriginal Community-Controlled Health Services attendees across remote, regional, and urban Australia

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Background: Trichomoniasis, caused by infection with *Trichomonas vaginalis* (TV), is the most common non-viral sexually transmissible infection globally and is associated with HIV transmission and poor reproductive and perinatal outcomes. However, there are no national TV testing and positivity data available. Using data from a national sentinel clinic network, we describe the epidemiology of TV testing and factors associated with positivity among Aboriginal peoples.

Methods: Data were extracted from ATLAS, a national sentinel surveillance system network representative of Aboriginal Community-Controlled Health Services in remote rural and urban settings across four jurisdictions. We obtained all clinical attendance, tests and results for TV, *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoea* (NG) among Aboriginal clients aged 15–49 years from 2016–2019. Clinic attendees for each year were analysed for any TV testing and unique-individual positivity.

Results: During the study period, 53 811 unique Aboriginal attendees aged 15 to 49 years had at least one clinical contact per year on 128 117 occasions. Over the four years 24 754 (19.3%) attendees received at least one TV test (women 21.9%, men 15.8%). Most women (81.3%) and men (78.7%) who were tested during a year for CT/NG, also received TV testing. TV positivity was higher in Aboriginal women (8.4%) than men (2.6%). For women, TV positivity was highest in 15–19 year olds (9.2%), 40–49 year olds (9.7%), women living in extreme remote areas (13.8%) and areas of lowest socioeconomic index (greatest disadvantage) (8.8%). For men, TV positivity was highest in 30–39 year olds (3.9%), and men living in extreme remote areas (4.9%) and greatest disadvantage (3%).

Conclusion: This analysis confirms that Aboriginal women experience a high disease burden and that there is a need for consistent clinical guideline review, policy and programs aimed at reducing TV infections and sequelae in remote Aboriginal communities.

Disclosure of interest statement: Nil.

Sexual Health – Discovery and translational science, biology, resistance and pathogenesis

24 Development of a novel human oral tissue model of gonorrhoea

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Background: Oropharyngeal *Neisseria gonorrhoeae* (NG) infections are common, increasing and have higher treatment failure compared with other infection sites. Antimicrobial resistant (AMR) NG is a global public health threat as available treatments remain scarce due to AMR. Little is known about where NG colonizes in the oral mucosa and therefore, where antibiotics need to be distributed to cure infection. In April 2022 we started to create an in-vitro co-culture model for NG strains with human oral epithelial cells to understand NG growth in the mouth and later examine antibiotic uptake by oral cell types supporting NG growth.

Methods: FA1090 and WHO-X NG strains were grown on Chocolate agar with IsovitaleX™ and in Fastidious broth media in optimised conditions. NG cell numbers were determined using a colony counter (Scan® 1200, Interscience Technology). Viability of NG cultured cells was assessed at 7 early timepoints (0/1/3/6/9/12/24 hours) in 3 different oral keratinocytes culture medias co-culture with 3 human oral keratinocytes cell lines – hTERT TIGKs CRL-3397™, #2610, #2560, and OKF6, isolated from the alveolar process, buccal mucosa, tonsil and floor of the mouth, respectively. Keratinocytes viability was measured using MTS cell proliferation assay, and absorbance measured at 490–500 nm at timepoints 0/24/48/72 hours. Intra- and extra-cellular bacteria were quantified and their spatial distribution was assessed with confocal microscopy and immunofluorescence. Host cell viability in response to gonococcal infection was measured with LIVE/DEAD Assays, and Annexin V Assay.

Results: We created the first-of-its-kind in-vitro model for NG oral infection demonstrating that is possible to co-culture NG with oral derived cells. We uncovered the dynamics of NG colonization of the oral cavity and present an alternative model to investigate novel therapeutics against infection.

Conclusion: Our presented model can explore the interactions of NG with oral tissues and investigate current and new therapeutics against oropharyngeal gonorrhoea.

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25 Novel causes of urethritis in men

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Background: Nongonococcal urethritis (NGU) is the commonest male genital tract syndrome. Up to 50% of NGU cases are idiopathic, i.e. no aetiological agent is identified. This poses significant challenges for clinicians in the diagnosis and treatment of NGU, and often results in antibiotic misuse and overuse. To identify potential infectious causes of urethritis, inform clinical management, and promote antimicrobial stewardship, we characterised and compared the urethral microbiota of men with and without idiopathic urethritis.

Methods: Participants were derived from a case-control study conducted at the Melbourne Sexual Health Centre between 2004–2005 that examined viral and bacterial pathogens and sexual practices associated with NGU. Men with NGU who tested negative for established causes of NGU (*Chlamydia trachomatis*, *Mycoplasma genitalium*, *Trichomonas vaginalis*, adenoviruses, HSV) were classified as idiopathic urethritis cases (n = 96), and controls (n = 103) were men reporting no current urethral symptoms. All men provided a first pass urine sample that was used to characterize the urethral microbiota using 16S-rRNA gene sequencing. Analysis of compositions of microbiomes with bias correction (ANCOM-BC) was used to identify bacterial taxa associated with idiopathic urethritis.

Results: When stratified by sex of sexual partner, the abundance of *Haemophilus influenzae* was increased in men-who-have-sex-with-men with idiopathic urethritis (ANCOM-BC-Coefficient = 3.39, false discovery rate [FDR]-P = 0.004), and the abundance of *Corynebacterium* was increased in men-who-have-sex-with-women with idiopathic urethritis (ANCOM-BC-Coefficient = 1.05, FDR-P = 0.055). Other taxa including *Ureaplasma*, *Staphylococcus haemolyticus*, *Streptococcus pyogenes*, *Escherichia*, and *Staphylococcus pneumoniae*, were found to dominate the urethral microbiota of cases but not controls, suggesting that these organisms may also contribute to urethritis.

Conclusion: Our findings suggest that a range of bacteria are likely to be causing idiopathic urethritis and that these bacteria may be influenced by sexual practices and sex of partners. The bacteria that we identified represent biologically plausible aetiologic agents of urethritis that should be investigated further in larger studies.

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