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RESEARCH ARTICLE
https://doi.org/10.1071/SH26148

SEXUAL HEALTH

# Chlamydia prescribing trends in Australia before and after a national guideline update: a retrospective study of sentinel surveillance data, 2015–2025

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**Handling Editor:**
Michael Marks

**Received:** 5 June 2026
**Accepted:** 3 September 2026
**Published:** 1 October 2026

**Cite this:** Munari SC *et al.* (2026) Chlamydia prescribing trends in Australia before and after a national guideline update: a retrospective study of sentinel surveillance data, 2015–2025. *Sexual Health* **23**, SH26148. doi:10.1071/SH26148

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## ABSTRACT

**Background.** This study investigated prescribing practices following changes in the Australian chlamydia treatment guidelines in 2022, which replaced doxycycline or azithromycin with doxycycline as first-line therapy for oropharyngeal or urogenital infections. **Methods.** Data from 61 clinics in the Australian Collaboration for Coordinated Enhanced Sentinel Surveillance of STIs and blood-borne viruses (ACCESS) project (January 2015–June 2025) from individuals aged 16–80 years with positive urogenital or pharyngeal chlamydia tests were analysed. An interrupted time series analysis (intervention point Q1 2022) assessed quarterly changes in the proportion of tests prescribed doxycycline and azithromycin within 14 days before and 31 days after positive tests. Anorectal infections were excluded as doxycycline was already the first line recommendation for this anatomical site. **Results.** A total of 69,925 positive tests (53,202 (76.1%) at sexual health clinics (SHCs)) from 60,084 people were included. Doxycycline prescribing increased by 1.61 percentage points (95% CI, 1.47–1.75) per quarter before the guideline change; immediately increased by 13.5 percentage points (95% CI, 8.58–18.4); then increased by 1.70 percentage points (95% CI, 1.08–2.31) post-change. The proportion treated with azithromycin decreased by 0.62 percentage points (95% CI, −0.79 to −0.44) per quarter pre-guideline change; immediately decreased at the change by 18.1 percentage points (95% CI, −22.75 to −13.52); then decreased 1.64 percentage points (95% CI, −2.09 to −1.19) post-change. SHCs and general practices specialising in the care of gay and bisexual men showed greater pre-change increases in doxycycline prescribing, whereas general practice and community health accelerated post-change. **Conclusions.** Doxycycline prescribing for chlamydia has increased with corresponding declines in azithromycin use following the 2022 Australian treatment guideline change. Setting-specific implementation strategies may accelerate evidence uptake for future guideline updates.

**Keywords:** azithromycin, chlamydia, doxycycline, guidelines, public health, sentinel surveillance, sexually transmissible infections, treatment.

## Introduction

Chlamydia remains the most prevalent bacterial sexually transmissible infection (STI) both in Australia and globally, with more than 128 million new chlamydia infections worldwide among people aged 15–49 years in 2020.[1,2] Timely treatment with an effective antimicrobial is crucial to reduce the risk of disease progression, complications, and reinfection in the index patient, ongoing transmission to partners, and broader antimicrobial resistance. At the beginning of 2022, the Australian STI Management Guidelines for Use in Primary Care changed from the previous recommended treatment (i.e. 100 mg doxycycline orally twice per day for 7 days or 1 g azithromycin orally) to the revised recommended treatment (i.e. 100 mg doxycycline orally twice per day for 7 days) for uncomplicated oropharyngeal or urogenital infection, with 1 g azithromycin orally immediately listed as the alternative.[3] Doxycycline remains as the recommended treatment for anorectal chlamydia infection, and

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azithromycin as the recommended treatment for pregnant people or if there are concerns about medication adherence. This change was informed by new evidence demonstrating the superiority of doxycycline over azithromycin for curing anorectal infections.[4–6] Given the high rates of concomitant rectal infection in women with urogenital infection, reducing the risk of reinfection due to auto-inoculation from the anorectal site adds further rationale to the use of doxycycline over azithromycin.[7] Moving away from azithromycin as first-line therapy for chlamydia not only aims to reduce the risk of treatment failure but also macrolide resistance, which is an ever-growing public health threat. Within the international context, the British Association for Sexual Health and HIV, the International Union against STIs European STI guidelines, and the United States Centre for Disease Control (US CDC) also recommend that all chlamydia infections are treated with doxycycline in preference to single-dose azithromycin.[8–10]

To date, the impact of the 2022 chlamydia treatment guideline update on prescribing practices in Australia is unknown; therefore, it is uncertain whether further promotion of chlamydia management guidelines is needed. Using retrospective data from a large sentinel surveillance system in Australia, this study aimed to determine if a change in prescribing occurred after the change to treatment guidelines that now recommend doxycycline as first-line therapy for the treatment of uncomplicated urogenital or pharyngeal chlamydia infection.

## Methods

### Setting

Data were from the Australian Collaboration for Coordinated Enhanced Sentinel Surveillance of STIs and blood-borne viruses (BBVs) (ACCESS, accessproject.org.au). ACCESS is a national sentinel surveillance network that includes sites across all Australian states and territories. These sites are comprised of sexual health clinics (SHC), general practices providing care to the general community (GP) and to the gay and bisexual men (GBM) community (GBM GP), community health clinics (CH), hospitals, laboratories, and drug and alcohol services. Being a sentinel surveillance system, ACCESS sites primarily serve populations at increased risk of STIs and BBVs, including chlamydia, gonorrhoea, syphilis, HIV, hepatitis B, and hepatitis C. The primary purpose of ACCESS is to monitor testing, diagnosis, and treatment trends for STIs and BBVs and to assess the effectiveness of interventions designed to reduce their transmission.[11]

In Australia, clinical advice is available via the Australian STI management guidelines, a publicly available resource, commonly used by general practitioners, nurses, and sexual health physicians. A search of The Wayback machine, which is an internet archiving website, showed that the Australian STI Management Guidelines for Use in Primary Care website was updated to reflect the new recommendations for chlamydia management on around 9 January 2022.[12] Management guidelines for uncomplicated urogenital or pharyngeal chlamydia infection changed from the previous recommended treatment (i.e. 100 mg doxycycline orally twice per day for 7 days or 1 g azithromycin orally)[12] to the revised recommended treatment (i.e. 100 mg doxycycline orally twice per day for 7 days) with 1 g azithromycin orally immediately listed as the alternative.[12]

### Participants

Individuals included were aged 16–80 years, had male or female sex recorded in the patient management system, attended one of the included clinics, and tested positive for urogenital and/or pharyngeal chlamydia between 1 January 2015 and 30 June 2025. Individuals could contribute more than one positive test to the analyses.

### Data sources

Non-identified electronic medical record data were retrospectively extracted from patient management systems at participating ACCESS sites using GRHANITE data extraction software. Data included in this study were age and sex of individuals, positive urogenital or pharyngeal chlamydia tests, and electronic medication prescribing records.

We included prescriptions for antibiotics associated with STI treatment, as recommended in the current Australian STI Management guidelines for the treatment of bacterial STIs including doxycycline, azithromycin, ceftriaxone, amoxicillin, ciprofloxacin, probenecid, benzathine benzylpenicillin, procaine benzylpenicillin, benzylpenicillin, moxifloxacin, pristinamycin, minocycline, sitafloxacin, or other type of penicillin.[13] We classified tests as either having: (1) an associated script; or (2) no associated script. For tests with an associated script, we classified prescription type as doxycycline, azithromycin, and/or other antibiotic. Prescription records were included if the date of the record was within 14 days before or 31 days after the date of the positive chlamydia test. The period of 14 days before and 31 days after a positive chlamydia test date was chosen to allow for prescriptions that may have been given at the same time as the pathology test request (for example, presumptive treatment for chlamydia), or for treatment prescribed at a subsequent consultation after the return of a positive test result.[14,15] Cases could have multiple antibiotics prescribed.

### Statistical analysis

The outcome was antibiotic prescribing associated with a chlamydia positive test, classified into doxycycline, azithromycin, another antibiotic, and no antibiotic. Data were summarised as counts and proportions of chlamydia positive tests treated with doxycycline, azithromycin, another STI-related antibiotic, and no script, which were stratified by

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test year (2015–2025), individual sex (male, female, and other), age group (16–29 years, 30–49 years, and 50–80 years) and service type (SHC; GP; GP GBM; and CH). To evaluate if publishing new guidelines that recommended doxycycline only as first-line treatment changed prescribing practices, interrupted time series models were deployed. The unit of analyses for the models was proportion of chlamydia tests prescribed doxycycline (Model 1) and azithromycin (Model 2). Because some tests were prescribed both doxycycline and azithromycin, some tests were included in both models. Data were aggregated to calendar-year quarters (i.e. number of chlamydia positive tests prescribed doxycycline/number chlamydia positive tests in each quarter). The three time periods of interest were: (1) before the guidelines change, from Q1 2015 to Q1 2022; (2) the intervention point, Q1 2022; and (3) after the guidelines change, from Q2 2022 to Q2 2025. We report model coefficients of the pre-intervention slope (representing the average change each quarter in the proportion of chlamydia tests prescribed doxycycline or azithromycin before Q1 2022), the immediate effect (or step-change) representing the change in the proportion at Q1 2022, the post-intervention slope (representing the average change in the proportion after Q1 2022), and the difference between the pre- and post-intervention slopes. We hypothesised that at the introduction of the guidelines, an immediate increase in the proportion of doxycycline prescriptions and immediate decrease in the proportion of azithromycin prescriptions would occur. After the guideline change, we hypothesised that we would see a plateauing in the proportion of doxycycline prescriptions and a sustained decrease in the proportion of azithromycin prescriptions. All models used Newy-West standard errors to account for autocorrelation. All analyses were performed using Stata/SE 17 software (StataCorp. 2022, Stata Statistical Software, Release 17.0 for Windows, College Station, TX, StataCorp LLC) and Microsoft Excel.

## Ethics approval

Ethics approval for ACCESS was provided by the Human Research Ethics Committees at Alfred Hospital (248/17), Northern Territory Department of Health and Menzies School of Health (08/47), Aboriginal Health and Medical Research Council (1099/15), ACON (2015/14), Victorian AIDS Council/Thorne Harbour Health (VAC REP 15/003) and University of New South Wales (4755).

## Results

Between 1 January 2015 and 30 June 2025, a total of 97,425 positive urogenital or oropharyngeal or anatomical site not specified chlamydia tests, among 76,594 people aged 16–80 years old were performed. Tests included were performed at GP, GBM GP, SHC, and CH clinics, which contributed data both before and after the intervention date. After excluding tests where there was a concurrent anorectal infection ($n$ = 18,242) or anatomical site not specified ($n$ = 3539), 75,644 positive urogenital or oropharyngeal chlamydia tests from 63,096 people remained. Test records where the anatomical site was not specified were mostly from SHCs (3291; 93%) and among males (2298; 64.9%). After excluding tests with a prescription outside of the time period, the final analysis sample was 69,925 positive urogenital or oropharyngeal chlamydia tests with either no prescription or an STI-related antibiotic prescription within 14 days before and 31 days after the test date. Among the 60,084 individuals contributing data, 35,162 (58.5%) were males, and 24,860 (41.4%) were females; the average age at first test was 29.2 years (standard deviation 9.6). Among the 69,925 tests, 61 clinics contributed data and 53,202 (76.1%) were performed at SHCs. Each clinic contributed prescription data to the analyses.

The number of tests that had both a doxycycline and azithromycin prescription within 14 days before and 31 days after the test date was 3743 (5.4%); doxycycline and another antibiotic was 3317 (4.7%); azithromycin and another antibiotic was 5206 (7.4%); and doxycycline, azithromycin, and another antibiotic was 1297 (1.9%). The highest annual proportion of chlamydia cases treated with doxycycline occurred in 2024 (6045, 78.4%), whereas the highest annual proportion of chlamydia cases treated with azithromycin occurred in 2017 (5006, 71.1%). Counts and proportions of chlamydia positive tests by year, sex, age group, and ACCESS service type are in Table 1.

A total of 69,925 positive chlamydia tests were included in the model for doxycycline. On average, the proportion of chlamydia positive tests treated with doxycycline before the change in guidelines increased each quarter by 1.61 (95% CI, 1.47–1.75) percentage points (pre-intervention slope). At the intervention point, representing when the guideline change occurred, there was an immediate increase in the proportion of positive tests treated with doxycycline of 13.47 (95% CI, 8.58–18.36) percentage points. After the change in guidelines, the proportion of chlamydia positive tests treated with doxycycline increased each quarter by 1.70 (95 % CI, 1.08–2.31) percentage points (post-intervention slope) (Fig. 1; Table 2).

A total of 69,925 positive chlamydia tests were included in the model for azithromycin. On average, the proportion of chlamydia positive tests treated with azithromycin before the change in guidelines decreased each quarter by 0.62 (95% CI, −0.79 to −0.44) percentage points (pre-intervention slope). At the intervention point, representing when the guideline change occurred, there was an immediate decrease in the proportion of positive tests treated with azithromycin of 18.13 (95% CI, −22.75 to −13.52) percentage points. After the change in guidelines, the proportion of chlamydia positive tests treated with azithromycin decreased each quarter by 1.64 (95% CI, −2.09 to −1.19) percentage points (post-intervention slope) (Fig. 1; Table 2).

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**Table 1.** Number and proportion of positive chlamydia tests by year, sex group, age group, and ACCESS service type between January 2015 and June 2025.

| | Positive chlamydia tests with doxycycline script (*n*) | Proportion positive chlamydia tests with doxycycline script (%)[A] | Positive chlamydia tests with azithromycin script (*n*) | Proportion positive chlamydia tests with azithromycin script (%)[A] | Positive chlamydia tests with other STI-related antibiotic script (*n*) | Proportion positive chlamydia tests with other STI-related antibiotic script (%)[A] | Positive chlamydia tests with no script (*n*) | Proportion positive chlamydia tests with no script (%) | Total positive chlamydia tests (*n*) |
|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | | | | | |
| 2015 | 333 | 6.0 | 3797 | 68.7 | 377 | 6.8 | 1591 | 28.8 | 5528 |
| 2016 | 587 | 9.6 | 4128 | 67.7 | 437 | 7.2 | 1627 | 26.7 | 6099 |
| 2017 | 963 | 13.7 | 5006 | 71.1 | 576 | 8.2 | 1422 | 20.2 | 7036 |
| 2018 | 1983 | 26.7 | 4589 | 61.8 | 694 | 9.4 | 1249 | 16.8 | 7420 |
| 2019 | 2591 | 31.9 | 5029 | 61.8 | 844 | 10.4 | 929 | 11.4 | 8135 |
| 2020 | 2047 | 36.6 | 3349 | 59.8 | 712 | 12.7 | 488 | 8.7 | 5598 |
| 2021 | 2141 | 41.3 | 2862 | 55.2 | 595 | 11.5 | 443 | 8.5 | 5189 |
| 2022 | 3807 | 61.5 | 2187 | 35.3 | 802 | 12.9 | 473 | 7.6 | 6195 |
| 2023 | 5914 | 72.8 | 2067 | 25.4 | 1082 | 13.3 | 602 | 7.4 | 8125 |
| 2024 | 6045 | 78.4 | 1531 | 19.8 | 990 | 12.8 | 554 | 7.2 | 7714 |
| 2025[B] | 2236 | 77.5 | 560 | 19.4 | 391 | 13.5 | 264 | 9.1 | 2886 |
| Sex | | | | | | | | | |
| Male | 17,979 | 42.6 | 21,476 | 50.9 | 5744 | 13.6 | 4830 | 11.4 | 42,196 |
| Female | 10,632 | 38.4 | 13,595 | 49.2 | 1747 | 6.3 | 4803 | 17.4 | 27,655 |
| Other[C] | 36 | 48.6 | 34 | 45.9 | 9 | 12.2 | 9 | 12.2 | 74 |
| Age group (years) | | | | | | | | | |
| 16–29 | 16,939 | 39.0 | 21,271 | 49.0 | 3318 | 7.6 | 7062 | 16.3 | 43,423 |
| 30–49 | 9747 | 44.1 | 11,402 | 51.6 | 3436 | 15.5 | 2311 | 10.5 | 22,107 |
| 50+ | 1961 | 44.6 | 2432 | 55.3 | 746 | 17.0 | 269 | 6.1 | 4395 |
| ACCESS service type | | | | | | | | | |
| GP | 978 | 23.0 | 3459 | 81.2 | 420 | 9.9 | 155 | 3.6 | 4258 |
| CH | 797 | 21.6 | 1462 | 39.5 | 91 | 2.5 | 1499 | 40.5 | 3698 |
| GP GBM | 3502 | 39.9 | 5373 | 61.3 | 1072 | 12.2 | 485 | 5.5 | 8767 |
| SHC | 23,370 | 43.9 | 24,811 | 46.6 | 5917 | 11.1 | 7503 | 14.1 | 53,202 |
| Total | | | | | | | | | 69,925 |

GP, general practice; CH, community health; GP GBM, general practice specialising in the care of gay and bisexual men; SHC, sexual health clinic.
[A]Total proportions exceed 100% as cases could have more than one antibiotic prescribed.
[B]2025 data complete until 30 June.
[C]Other sex, patient sex recorded but not as male or female.



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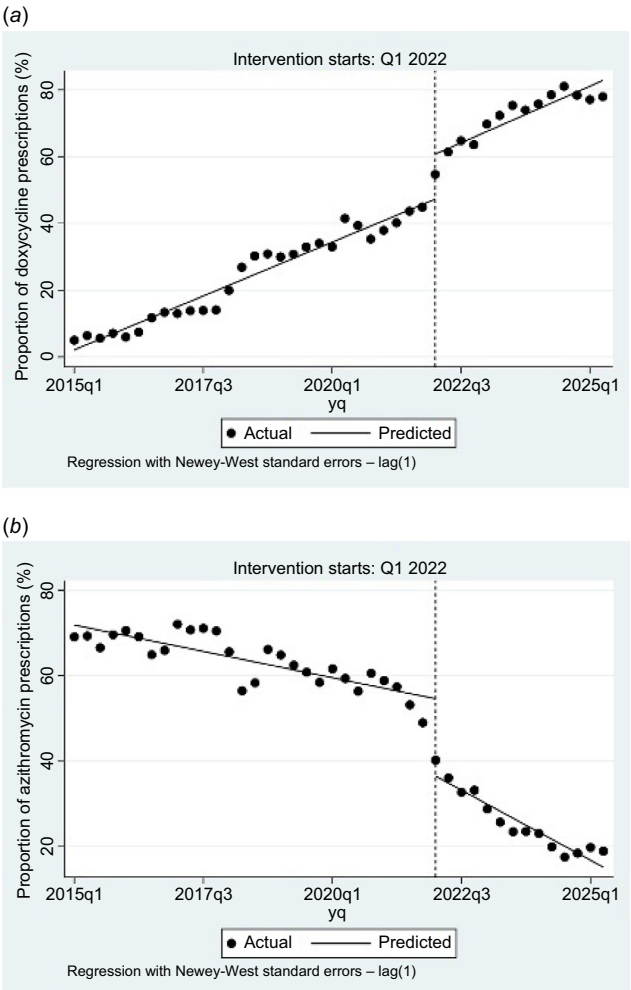



**Fig. 1.** Interrupted time-series analysis plot showing the proportion of tests with (*a*) doxycycline and (*b*) azithromycin prescriptions recorded within 14 days before and 31 days after a positive chlamydia test between January 2015 and June 2025. The vertical dotted line indicates the intervention date (start of Q1 2022) when guidelines were officially changed from either doxycycline or azithromycin as first-line treatment to doxycycline only. Note: each increment of time on the *x*-axis represents one quarter year, beginning at Q1 2015; e.g. time 0 = Q1 2015, time 41 = Q2 2025.

A total of 61,969 positive chlamydia tests were included in the model for doxycycline at SHC and GBM GPs. Before the guideline change, the proportion of chlamydia-positive tests treated with doxycycline at SHC and GBM GPs increased by 1.77 percentage points per quarter (95% CI, 1.62–1.91). At the time of the guideline change, there was an immediate 13.3-percentage point increase (95% CI, 8.31–18.2). Afterward, the quarterly change further increased to 1.56 percentage points (95% CI, 0.93–2.19) (Fig. 2; Table 3).

A total of 7956 positive chlamydia tests were included in the model for doxycycline at GP and CH. Before the guideline change, the proportion of chlamydia-positive tests treated with doxycycline at GP and CH increased by 0.42 percentage points per quarter (95% CI, 0.26–0.59). At the time of the guideline change, there was an immediate 10.7-percentage point increase (95% CI, 6.13–15.3). Afterward, the quarterly change further increased to 3.09 percentage points (95% CI, 2.65–3.54) (Fig. 2; Table 3).

## Discussion

Our analysis of a decade of sentinel surveillance data between January 2015 and June 2025 showed that the proportion of positive chlamydia infections in Australia prescribed doxycycline within 14 days before and 31 days after a test was increasing before the treatment guideline update in 2022 and continued to increase after the guideline change. Within the same cohort, the proportion prescribed azithromycin was decreasing before the guideline update, with a sharper decrease observed at the time of the update compared with those prescribed doxycycline. Compared with practitioners at SHCs and GBM GPs, GP and CH practitioners were observed to have a steeper rise in doxycycline prescribing immediately after publication of the guidelines. These findings indicate that information, including the official STI Management Guideline review and updates to the nationally accessible website,[12] reached intended audiences and had a marked impact on doxycycline uptake. Findings also emphasise that the guidelines appeared to play an important role for GP and CH practitioners in adapting practice as required.

The earlier increase in the proportion of doxycycline prescriptions occurring before the guideline change at SHCs and GBM GPs indicated that information about doxycycline's superiority over azithromycin was reaching these practi tioners well before the official guideline change. This likely reflects early adoption of emerging evidence by practitioners with a special interest in sexual health before official guideline revisions. An early meta-analysis published in 2002 showed equal efficacy between doxycycline and azithromycin

**Table 2.** Interrupted time-series analysis of quarterly proportion of positive oropharyngeal and urogenital chlamydia positive tests treated with doxycycline and azithromycin from January 2015 to June 2025, in people aged 16–80 years.

| | Pre-intervention slope | Immediate change | Post-intervention slope | Difference in slopes | Intercept |
|---|---|---|---|---|---|
| Proportion of doxycycline prescriptions | 1.61 (1.47–1.75) | 13.5 (8.58–18.4) | 1.70 (1.08–2.31) | 0.08 (−0.55–0.72) | 2.16 (0.22–4.55) |
| Proportion of azithromycin prescriptions | −0.62 (−0.79 to −0.44) | −18.1 (−22.8 to −13.5) | −1.64 (−2.09 to −1.19) | −1.02 (−1.48 to −0.57) | 71.87 (68.9–74.9) |

Data are $\beta$-coefficients (95% CIs) from the linear regression model.



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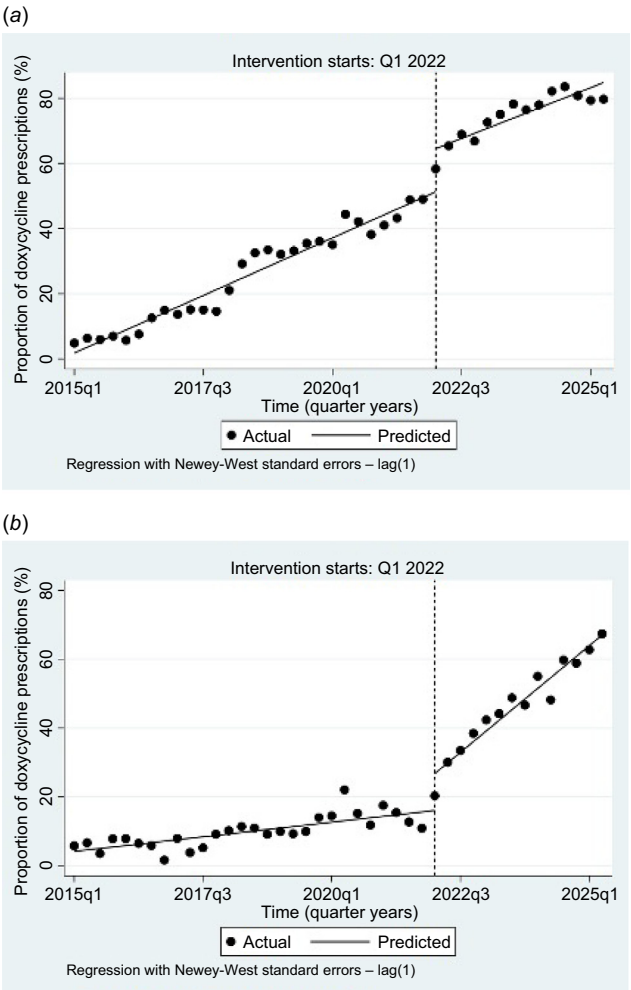



**Fig. 2.** Interrupted time-series analysis plots showing the proportion of tests with a doxycycline prescription recorded within 14 days before and 31 days after a positive chlamydia test between January 2015 to June 2025 by ACCESS service type. (*a*) Sexual health clinics and general practices specialising in the care of gay and bisexual men, and (*b*) general practice and community heath. The vertical dotted line indicates the intervention date (start of Q1 2022) when guidelines were officially changed from either doxycycline or azithromycin as first-line treatment to doxycycline only. Note: each increment of time on the *x*-axis represents one quarter year, beginning at Q1 2015; e.g. time 0 = Q1 2015, time 41 = Q2 2025.

for treating urogenital chlamydia infections.[16] In 2014, a cohort study revealed early evidence of doxycycline's superiority over azithromycin for rectal chlamydia infections, demonstrating higher treatment failure rates when treated with azithromycin compared with doxycycline[17] and a systematic review estimated a small increased efficacy for doxycycline compared with azithromycin for the treatment of urogenital chlamydia.[6] Evidence of doxycycline's superiority over azithromycin was likely to also have been presented at sexual health related conferences during this time. It was also around 2014 that clinicians and researchers were expressing growing concerns about treatment failure rates associated with azithromycin, particularly for rectal chlamydia infections, highlighting the need for controlled trials to provide stronger evidence.[18,19] Subsequently, from 2016, several trials went on to demonstrate doxycycline's superiority over azithromycin for treating chlamydia infections. These included Dombrowski *et al* and Lau *et al.*'s 2021 randomised controlled trials among men who have sex with men with rectal chlamydia, showing doxycycline superiority.[4] In August 2022, Peuchant *et al.*'s randomised, controlled superiority trial also demonstrated the superiority of doxycycline over azithromycin for the treatment of anorectal chlamydia infection among women.[20] Following this, in November 2022, the Australian STI Management Guideline review was published.[21] It is likely that these early findings and expert discussions were the reason for the increase in doxycycline prescribing occurring among practitioners with a special interest in sexual health well before the official change to Australian guidelines.

Other studies examining chlamydia prescribing trends show similar results. Following the same update to the US Centre for Disease Control chlamydia treatment guidelines in July 2021, Khosropour *et al.* found an increase in doxycycline prescriptions for chlamydia infection among a national convenience sample of insurance claims, increasing from 17% in 2016–2020 to 57% in 2022.[22] Of note in this study was that women and people aged under 25 years were less likely to receive doxycycline. Again in the US, among a paediatric primary care network in the mid-Atlantic region, Makeneni and Wood observed an increase in doxycycline treatment of chlamydia, from 6% in 2019 to 54% in 2021.[23]

**Table 3.** Interrupted time-series analysis of quarterly proportion of positive oropharyngeal and urogenital chlamydia positive tests treated with doxycycline from January 2015 to June 2025, in people aged 16–80 years, by service type groups.

| | Pre-intervention slope | Immediate change | Post-intervention slope | Difference in slopes | Intercept |
|---|---|---|---|---|---|
| Proportion of doxycycline prescriptions among GP and CH | 0.42 (0.26–0.59) | 10.7 (6.13–15.3) | 3.09 (2.65–3.54) | 2.67 (2.17–3.17) | 4.18 (2.13–6.22) |
| Proportion of doxycycline prescriptions among SHC and GBM GP | 1.77 (1.62–1.91) | 13.3 (8.31–18.2) | 1.56 (0.93–2.19) | −0.21 (−0.86 to 0.44) | 1.85 (−0.74 to 4.44) |

Data are $\beta$-coefficients (95% CIs) from the linear regression model.
GP, general practice; CH, community health; GP GBM, general practice specialising in the care of gay and bisexual men; SHC, sexual health clinic.

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This study has several strengths and limitations. A key strength is the use of a large national surveillance dataset resulting in a large sample size and multiple clinics, increasing its generalisability, particularly to countries with similar guideline changes, such as the US. Additionally, the use of an interrupted time-series analysis to analyse numerous time points of routine prescribing data enabled robust estimates of the impact of the national guideline change. Several considerations should also be made when interpreting our findings. First, 5.4% of people were prescribed both doxycycline and azithromycin within 14 days before and 31 days after a positive chlamydia test, meaning that both prescriptions were counted in the analysis. A person may have been prescribed doxycycline, azithromycin, and/or another STI-related antibiotic due to having a concurrent STI or commencing doxycycline post-exposure prophylaxis (Doxy-PEP). Second, because doxycycline is used to treat several other conditions, there is the possibility that some doxycycline prescriptions counted in our analysis were not related to the chlamydia test in question, leading to an over-estimation of the number of chlamydia positive tests treated with doxycycline. However, it is unlikely that trends in prescribing for other uses has changed over the study period. Third, the absence of an associated script is most likely due to the use of paper scripts that are not captured in the electronic dataset, particularly in the earlier years of the study period. It is also possible that some clinics provided medications onsite (e.g. via imprest stock) without recording a prescription in their system. However, a major SHC included in the analysis confirmed that any medications given on site are still prescribed in their medical record system and therefore would have been captured in our analysis. Other explanations include the prescription being provided by a clinic outside the ACCESS network or the individual being lost to follow up. Fourth, as most of the excluded tests from non-specified anatomical sites were from SHCs and males, it is likely that many of these were anorectal tests and would have been excluded from our analysis anyway. Fifth, as each infection was treated as an individual episode, treatment failure and subsequent switching of antibiotics will not have been captured. Finally, as approximately three-quarters of tests in this study were performed at SHCs where clinicians may be more attuned to updates in STI treatment guidelines or even involved in their development, this may overestimate the effect of our findings. Nevertheless, our site-specific analysis did show that GPs and CH increased their prescribing of doxycycline after the guideline change.

Surveillance data demonstrate that doxycycline prescriptions have increased and azithromycin prescriptions have decreased as recommended in the 2022 update to Australian chlamydia treatment guidelines. Findings indicate that the guideline update reached clinicians responsible for diagnosing and managing chlamydia, with earlier adoption observed among SHC and GPs specialising in the care of gay and bisexual men. Findings suggest targeted, setting-specific implementation strategies may accelerate evidence uptake. Future guideline updates should consider how pre-publication dissemination of emerging evidence through sexual health networks could be leveraged to support timely changes to STI management across all settings.

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**Ethics approval.** Ethics approval for ACCESS was provided by the Human Research Ethics Committees at Alfred Hospital (248/17), Northern Territory Department of Health and Menzies School of Health (08/47), Aboriginal Health and Medical Research Council (1099/15), ACON (2015/14), Victorian AIDS Council/Thorne Harbour Health (VAC REP 15/003) and University of New South Wales (4755).

**Consent.** As our study analysed de-identified data collected under the auspices of public health surveillance, individual patient consent was not required. Individuals were able to opt-out of the surveillance system if they wished.

**Data availability.** The data that support this study cannot be publicly shared due to ethical or privacy reasons but may be shared upon reasonable request to the corresponding author, if appropriate.

**Conflicts of interest.** MH receives funding from Gilead Science and Abbvie for investigator-initiated research unrelated to this area of work. MT has received speakers honoraria and consulting fees from Gilead Sciences Ltd. EPFC and JC are Associate Editors for *Sexual Health* but were not involved in the peer review or decision-making process for this paper. All other authors have no conflicts of interests to declare.

**Declaration of funding.** SM is supported by a Burnet Institute PhD scholarship, JH is supported by a National Health and Medical Research Council (NHMRC) Senior Research Fellowship (GNT1042907), MH is supported by an NHMRC Investigator Grant (GNT1194322), and EPFC is supported by an NHMRC Investigator Grant (GNT2033299). This research was supported by the Commonwealth through an Australian Government Research Training Program Scholarship [doi: https://doi.org/10.82133/C42F-K220]. ACCESS receives core funding from the Australian Department of Health, Disability and Ageing with the aim to monitor Australia's progress in the control of blood borne viruses and sexually transmissible infections. In addition, the governments of New South Wales, Victoria, and Western Australia provide funding for state level outcomes. Funding for particular outcomes is also provided by the Blood Borne Virus and STI Research, Intervention and Strategic Evaluation Program (BRISE), an NHMRC Project Grant (APP1082336), a NHMRC Partnership Grant (GNT1092852), and the Prevention Research Support Program, funded by the New South Wales Ministry of Health. No funding body played a role in the planning, writing or publication of this manuscript.

**Acknowledgements.** The authors acknowledge the contribution of the ACCESS Team members who are not co-authors of this article including Htein Linn Aung and Greta Baillie (Kirby Institute, UNSW Sydney), Wayne Dimech (NRL Quality), Alexis Apostolellis (Australasian Society for HIV Medicine), Aaron Cogle (National Association of People with HIV Australia), Brendan Quinn (Victoria Department of Health), Clare Bradley (ATLAS), Daniel Coase (Federation of Ethnic Communities' Councils of Australia), Dash Heath-Paynter (Health Equity Matters), David Lewis (Western Sydney Sexual Health Centre), David Nolan (Royal Perth Hospital), David Templeton (Royal Prince Alfred Hospital), Edward Huddy (Department of Health, Disability and Ageing), Emma Sanguineti (Queensland Ministry of Health), Florin Douglas (Deakin University), Janaki Amin (NSW Ministry of Health), Jane Davies (Menzies School of Health Research), John Didlick (Hepatitis Australia), John G and Jess Doumany (Australian Injecting and Illicit Drug Users League), Lisa Bastian (WA Department of Health), Mandy Charleton (Department of Health, Disability and Ageing), Manoji Gunathilake (Royal Darwin Hospital), Megan Campbell (National Aboriginal Community Controlled Health Organisation), Mish Pony (Scarlet Alliance), Norm Roth (Prahran Market Clinic), Philip Cunningham (SydPath), Tom Rees (SA Ministry of Health), and Thi Nguyen and Nyssa Watson (Burnet Institute). The authors also acknowledge all clinics participating in ACCESS, including the site investigators who contributed data to this analysis. ACCESS is a partnership between the Burnet Institute, Kirby Institute UNSW Sydney, and NRL Quality.

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