

New best practice guidance for general practice to reduce chlamydia-associated reproductive complications in women

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Background

Chlamydia is the most commonly diagnosed bacterial sexually transmissible infection (STI) in Australia, with most infections diagnosed and managed in general practice. Often asymptomatic, left untreated it can cause serious reproductive complications in women. There is now global recognition of the importance of enhanced chlamydia case management to reduce the risk of repeat infection and minimise harms of pelvic inflammatory disease (PID).

Objective

The aim of this article is to provide evidence-based information and resources to help general practitioners engage in partner management and retesting as part of routine STI care, in accordance with Australia's *Fourth National Sexually Transmissible Infections Strategy: 2018–2022*, and to provide up-to-date evidence about anorectal chlamydia and other emerging concerns in women.

Discussion

Evidence-based information and strategies for partner management and retesting the index case are provided in this article, in addition to information regarding the detection of PID, screening and treatment of anorectal chlamydia, antimicrobial resistance, and testing and treatment in pregnancy.

CHLAMYDIA TRACHOMATIS (chlamydia) is the most common bacterial sexually transmissible infection (STI) in Australia, with approximately 4–5% of young people aged 15–29 years infected with chlamydia at any point in time.¹ Although approximately 80% of women and men with genital chlamydia are asymptomatic,² if left untreated approximately 17% of infections in women will develop into pelvic inflammatory disease (PID),³ 'a syndrome comprising a spectrum of inflammatory disorders of the upper female genital tract' that 'varies widely in both severity and symptomatology'.⁴ PID increases the risk of ectopic pregnancy and infertility.^{5–7} Repeat infection also significantly increases the risk of PID in women; each repeat infection increases the risk of PID by 20%.⁸ Worryingly, repeat infections are common. An Australian study conducted with women aged 16–25 years recruited from primary care clinics reported approximately 20% of young women diagnosed with chlamydia will acquire a repeat infection within four months of treatment.⁹

There is now global recognition of the importance of enhanced chlamydia case management to reduce the risk of repeat infection and minimise harms of PID. Australia's *Fourth National Sexually Transmissible Infections Strategy: 2018–2022* (National STI Strategy) lists partner management and retesting as the key priorities for chlamydia management, and stresses the importance of engaging and supporting general practitioners (GPs) to

integrate partner management and retesting into routine STI care.¹⁰

The *Australian STI management guidelines for use in primary care* (STI Management Guidelines, www.sti.guidelines.org.au) are an excellent source of information about the testing and treatment of chlamydia in general practice, and we do not repeat this information here. Rather, given the key priorities outlined in the National STI Strategy, our focus is to provide updated evidence and information to help GPs conduct effective partner management and retesting for repeat infection to reduce PID and related reproductive complications in women. We also provide new evidence about emerging concerns related to chlamydia in women, including anorectal chlamydia, testing and treatment in pregnancy and antimicrobial resistance. A non-exhaustive list of key resources about chlamydia management for GPs and patients is included at the end of this article.

For specific information regarding treatment in specific populations (eg those with co-infections), or treatment in the context of persistent symptoms or treatment failures, GPs should refer to the STI Management Guidelines⁴ or seek specialist advice from their local specialist sexual health service. In this article, 'woman' refers to a person with a uterus, fallopian tubes and ovaries, and 'man' refers to a person with a penis and testicles; however, we recognise that people who identify as men can also have female reproductive organs.

National STI Strategy priorities: Integrating partner management and retesting into routine care

Partner management is an essential component of chlamydia control, preventing both ongoing transmission and repeat infection of the index case.¹¹ By preventing repeat chlamydia infection, effective partner management is key to reducing the risk of PID. Australian guidelines recommend notifying sexual partners from the previous six months.¹² Australian data shows that the sexual partners of nearly 75% of people diagnosed with chlamydia will also test positive.¹³ Although most untreated infections will clear within one year,³ some genital chlamydia infections in women can persist for several years without causing symptoms if left untreated.¹⁴ There is less information available about how long the untreated infection persists in men.¹⁵ Given this, it is important to inform patients that a newly diagnosed infection is not always newly acquired and that the patient and/or their partner may have had the infection for some time.¹⁴

Strategies for partner management

The diagnosing GP is responsible for initiating and documenting a discussion about partner notification.¹⁶ It is important to discuss with the index case the reasons for notifying sexual partners, help them identify which partners to notify, and identify the most appropriate method for notification (Table 1). Although a chlamydia diagnosis can prompt feelings of shock or shame in patients, most feel that telling their sexual partners is 'the right thing to do'.¹⁷ Reddel and Edmiston¹⁸ provide an overview of the process of partner notification, and contact tracing guidelines can be found online (<http://contacttracing.ashm.org.au>). The resources section in this article provides an overview of tools and resources to support partner management. Patients should also be advised not to engage in sexual activity for seven days after treatment initiation, and not to engage in sexual contact with partners from the previous six months until they too have been tested and treated as appropriate.⁴

Many patients will opt to inform their sexual partners themselves. GPs should

discuss how the patient will do this and provide them with printed information or a reputable website for their partners. Other patients may be reluctant to contact partners directly. They may opt to use an anonymous online notification tool, such as Let Them Know or Better to Know (for Aboriginal and Torres Strait Islander people), which can send an anonymous SMS or email to sexual partners. During the consultation, GPs can show patients these websites, which patients can use later. Other online resources, including postal at-home test kits, may also be appropriate for certain populations. Provider-initiated referral may be appropriate in complex situations – for example, if there are concerns about partner violence. Specialist sexual health clinics or public health units should be contacted directly for advice regarding partner notification in these situations.

Consider patient-delivered partner therapy

Patient-delivered partner therapy (PDPT) involves diagnosing GP providing an extra prescription to the index case for the treatment of their partner/s. PDPT is most suitable for patients with laboratory-diagnosed chlamydia and with heterosexual partners who are unable or unlikely to seek care themselves and

where the risk of repeat infection is high.¹⁹ Although PDPT reduces opportunity for STI screening and counselling of the partner, evidence shows that PDPT is effective at treating sexual partners and reducing the risk of repeat infection in the index case.¹¹ Patients with chlamydia appreciate having the option of PDPT.²⁰ Formal guidance for PDPT is available in Victoria, New South Wales and the Northern Territory. No formal guidance is provided in the remaining states and territories. PDPT is not recommended in South Australia because of concerns regarding antibiotic resistance in that state.

Organise retesting for the index case

Australian guidelines recommend retesting for repeat infection at three months.⁴ Retesting provides an opportunity to detect and treat a repeat infection early, thus reducing progression to PID and its potential reproductive complications.⁸ Retesting is sometimes confused with a test of cure which, unlike for gonorrhoea, is not needed for uncomplicated urogenital chlamydia infections except during pregnancy. A test of cure four weeks after treatment is recommended in pregnant women.⁴

Strategies for retesting

At the treatment visit, GPs should discuss the need and importance of retesting in

Table 1. Options for partner management

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| Online partner notification tools | Patients can use online notification tools such as: <ul style="list-style-type: none"> Let Them Know, https://letthemknow.org.au Better to Know, www.bettertoknow.org.au Drama Down Under, www.thedramadownunder.info |
| Patient-delivered partner therapy (PDPT) | Prescription or supply of antibiotics for a patient and partner/s without the partner needing a consultation. Guidelines for PDPT vary by state/territory. |
| Patient tells partner/s directly | General practitioner (GP) can give printed information or show reputable website to index case for partner/s. Partner/s can present to GP for testing and treatment (if required). |
| Provider-initiated | Contact specialist sexual health clinics or public health units directly for advice regarding partner notification in complex situations (eg when partner violence is a concern). |
| Other online resources | Postal test kit or test request (eg TESTme in Victoria or 13 HEALTH Webtest in Queensland). |

three months and how this will occur. Some GPs advise their patients to book a follow-up appointment at the treatment visit. Others schedule an SMS reminder for a follow-up appointment, place the patient on a recall system, or provide a signed pathology form for the patient to take to a pathology collection centre for testing in three months, or a combination of these options. An approach using SMS reminders for retesting has been shown to be effective at increasing retesting in the Australian sexual health care setting.²¹

Pelvic inflammatory disease

Untreated PID can have significant adverse outcomes, including infertility, ectopic pregnancy and chronic pelvic pain.⁵ Around 17% of chlamydia infections in women will progress to PID if left untreated,³ with the risk of PID increasing with repeat infections, particularly for younger women.⁸ Earlier detection of PID may reduce reproductive damage.³ Chlamydia is the most commonly detected STI associated with PID, followed by *Neisseria gonorrhoeae* and *Mycoplasma genitalium*, although in approximately 60% of cases no causal organism is identified.²² Few data are available about PID diagnosis rates in Australian general practice, but clinical audits of Aboriginal Medical Services suggest that most cases of PID are not diagnosed.²³ Preventing repeat infection via partner management and identifying repeat infection early via retesting are vital strategies to prevent and/or halt progression of PID.

Detecting pelvic inflammatory disease

Most diagnoses of chlamydia-related PID will be made on the basis of history and examination at the time of the chlamydia test,²⁴ but a positive chlamydia test result for any woman provides further opportunity to inquire about possible PID symptoms when she attends for treatment, including new-onset lower abdominal pain or dyspareunia. Clinicians should have a low threshold for diagnosing PID in all young sexually active women and women who are experiencing pelvic or lower abdominal pain. Pregnancy testing is essential as the symptoms may represent

a medical emergency such as ectopic pregnancy, and because the treatment of PID in pregnancy requires specialised management. Other medical emergencies including ovarian cyst torsion and appendicitis should also be considered. Links to resources to assist with differential diagnosis of abdominal pain in women of reproductive age can be found in the resources section of this article.

A bimanual and speculum examination should be carried out where PID is suspected on the basis of history, and endocervical swabs should be taken for STI testing. Presumptive empirical treatment for PID before swab results are available should be initiated without delay if one or more of the following minimum clinical criteria are present on bimanual pelvic examination:

- cervical motion tenderness
- uterine tenderness
- adnexal tenderness.

In situ intrauterine devices (IUDs) can remain in place unless no improvement has been made in 48–72 hours after initiation of treatment for PID.⁵ If removed, another IUD can be inserted once treatment for PID has been completed. Note that the risk of PID following IUD insertion is only heightened in the first 20 days post-insertion, whereafter risk returns to baseline.⁵

Emerging concerns about anorectal chlamydia infection in women

There is increasing discussion about anorectal chlamydia in women. Studies have shown that many women diagnosed with urogenital chlamydia will also test positive for anorectal chlamydia.²⁵ However, it is unclear whether this represents a clinically relevant anorectal infection or contamination from a urogenital infection that could occur during, for example, toileting. It is also difficult to identify those women who may be at increased risk of anorectal chlamydia and who may be targeted for screening, because there is no association between reporting anal sex and anorectal chlamydia infection in women.²⁵ Given this uncertainty and lack of evidence to

support anorectal chlamydia screening, screening for anorectal chlamydia infection in women without symptoms is not recommended in Australia. However, if the woman has anorectal symptoms including discharge, irritation or painful defecation and a history of anal sex, anal examination and testing for chlamydia and gonorrhoea is appropriate. A self-collected sample can be taken if preferred.⁴

Treatment considerations

Pregnancy

Screening for chlamydia (and other STIs) during routine antenatal screening is recommended to reduce the risk of pregnancy-related complications (eg premature rupture of the membranes) or transmission to the baby during vaginal delivery.⁴ The STI Management Guidelines⁴ are a useful reference for the diagnosis and management of chlamydia, including among specific population groups. The recommended treatment in pregnant women is an immediate dose of azithromycin (1 g orally). Although safe for use during early pregnancy, tetracyclines cause discolouration of the baby's teeth.²⁶ A test of cure is recommended at four weeks for pregnant women.⁴

Treatment concerns in the context of antimicrobial resistance

The STI Management Guidelines⁴ now recommend patients with uncomplicated urogenital infection be treated with doxycycline (100 mg twice daily [BD] orally for seven days) or an immediate dose of azithromycin (1 g orally). Clinical trial evidence suggests doxycycline and azithromycin have comparable efficacy for treating urogenital infection in women.²⁷ However, because azithromycin is increasingly implicated in antimicrobial resistance in other STIs²⁸ (eg gonorrhoea and *M. genitalium*), there is now a shift globally towards doxycycline as first-line treatment. The recommended first-line treatment for anorectal chlamydia is doxycycline 100 mg BD orally for seven days if asymptomatic (21 days if symptomatic).⁴ Meta-analysis shows that azithromycin is up to 20% less efficacious than seven days of doxycycline (100 mg BD)

for the treatment of anorectal chlamydia.²⁹ GPs should seek specialist advice at their local sexual health service or information line in the presence of medication allergy. The STI Management Guidelines have detailed guidance on how to treat chlamydia.⁴

Conclusion

Although often asymptomatic, untreated genital chlamydia can cause significant reproductive complications in women. Partner management and retesting the index case for repeat infection are now the focus of national STI strategies and, in concert with testing and treatment, are essential to reduce the burden of infection and potential for reproductive complications in women.

Key points

- The importance of enhanced chlamydia case management is now recognised globally.
- Untreated genital chlamydia can cause significant reproductive complications in women.
- Repeat infection increases the risk of PID, which can lead to reproductive complications.
- Earlier detection and treatment of PID may reduce the risk of subsequent tubal damage and infertility.
- Partner notification is recommended for the index case's sexual partners from the previous six months.
- Retesting at three months ensures repeat infections are detected early and helps prevent ongoing transmission.
- Anorectal chlamydia screening in women is not recommended.
- There has been a shift in focus to doxycycline as first-line treatment for urogenital chlamydia infection.

Resources for chlamydia management

Resources for general practitioners Guidelines

- Australasian Sexual Health Alliance – *Australian STI management guidelines for use in primary care*, www.sti.guidelines.org.au

- Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine (ASHM) – *Australasian contact tracing guidelines*, <http://contacttracing.ashm.org.au>
- The Royal Australian College of General Practitioners – *Guidelines for preventive activities in general practice* (Red Book), 6.2 Sexually transmissible infections, www.racgp.org.au/download/Documents/Guidelines/Redbook9/17048-Red-Book-9th-Edition.pdf
- Melbourne Sexual Health Centre – STI Atlas, <https://stiatlas.org>
- Therapeutic Guidelines – *eTG complete*, <https://tgldcdp.tg.org.au/index>
- Health Pathways – refer to Health Pathways developed for local Primary Health Networks (PHNs)

Education and training

- The University of Melbourne – Centre for Excellence in Rural Sexual Health, online learning modules, www.cersh.com.au/training-networks/online-learning
- Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine (ASHM), www.ashm.org.au
- State-specific family planning organisations often have family planning training for GPs – check individual websites for details: Family Planning NSW, Family Planning Victoria, Family Planning Tasmania, Family Planning NT, True (Queensland), SHINE SA, SHQ (Western Australia), SHFPACT (Australian Capital Territory)
- Primary Health Networks – check with local PHNs for education and training opportunities

Pelvic inflammatory disease

- Australasian Sexual Health Alliance – *Australian STI management guidelines for use in primary care*, PID – Pelvic inflammatory disease, www.sti.guidelines.org.au/syndromes/pid-pelvic-inflammatory-disease
- New South Wales Sexually Transmissible Infections Programs Unit (NSW STIPU) – Acute abdominal pain in women, <https://stipu.nsw.gov.au/gp/hiv-and-sti-clinical-management/acute-abdominal-pain-in-women>

Patient-delivered partner therapy

Formal guidance

- Formal guidance for PDPT is available in Victoria, New South Wales and the Northern Territory:
 - Victoria – *Patient delivered partner therapy clinical guidelines*, www2.health.vic.gov.au/about/publications/policiesandguidelines/pdpt-clinical-guidelines
 - Northern Territory – Medicines & poisons control information sheet no. 320.8: Patient delivered partner therapy, <https://digitallibrary.health.nt.gov.au/prodjspsui/handle/10137/895>
 - New South Wales – Patient delivered partner therapy, <https://stipu.nsw.gov.au/gp/hiv-and-sti-clinical-management/patient-delivered-partner-therapy>

No formal guidance

- No formal guidance is provided in Western Australia, Tasmania, Queensland or the Australian Capital Territory

Not recommended

- PDPT is not recommended in South Australia because of concerns regarding antibiotic resistance in that state, www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/clinical+resources/clinical+programs+and+practice+guidelines/infectious+disease+control/sexually+transmitted+infection+guidelines/chlamydia+trachomatis+genital+diagnosis+and+management

General information about PDPT

- For general information about PDPT, refer to <http://contacttracing.ashm.org.au/contact-tracing-guidance/patient-delivered-partner-therapy>

Resources for patients

Online notification tools

- Let Them Know, <https://letthemknow.org.au>
- Better To Know (Aboriginal and Torres Strait Islander people focused), www.bettertoknow.org.au
- The Drama Down Under (men who have sex with men focused), www.thedramadownunder.info

Example of a message for notifying partner/s

- ‘Hi, my chlamydia test is positive, and you might have it too. You should head to your GP for an STI test. Sorry to give you this news, but I thought it was better that you know.’

Mailed at-home test kits

- TESTme, for Victorians aged 16–25 years living in rural regions, <https://testme.org.au/index.htm>
- 13 HEALTH Webtest, for Queensland residents aged ≥16 years, www.qld.gov.au/health/staying-healthy/sexual-health/chlamydia-test

Fact sheets

- Family planning organisations and specialist sexual health services in each state and territory often have state-specific fact sheets, which are usually listed first in an online search (eg ‘family planning [insert state] chlamydia’)

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