

Gonorrhoea

NSW Control Guideline for Public Health Units

Revision history

Version	Date	Revised by	Changes	Approval
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Summary

Public health priority

Response to notified cases of gonococcal infection is often seen as a shared responsibility between public health units, sexual health clinics, and individual diagnosing clinicians. While the balance of responsibility may vary between jurisdictions, and in different situations, these guidelines are primarily intended for public health units and should be adapted to suit local practices, recognising that there are some situations, such as cases with multi-drug resistant gonorrhoea, where public health involvement is critical.

Priority Classification	Public health response timeline	Data entry timeline
High – infections: – [with critical antimicrobial resistance*] – [with decreased susceptibility to ceftriaxone*] – in minors – in pregnant women – outbreaks	Act as soon as possible, generally within 1 working day	Within 3 working days
Routine	[Any public health] action should be carried out as part of routine duties	Within 5 working days

[* See [Appendix D](#): Standard Operation Procedures: Gonococcal infections with critical antimicrobial resistance or decreased susceptibility to ceftriaxone]

Case management

Isolation of case is not required.

Case management is the responsibility of the diagnosing clinician.

Advice should be provided to the case that:

- all medications should be taken as directed
- all sexual partners should be notified, and encouraged to be [treated and tested], and
- sexual contact should be avoided until 7 days after the case and their current sexual partner(s) have been treated

Contact management

- contact tracing and management for most cases is the responsibility of the treating clinician
- contact tracing is a priority for all patients with confirmed infection
- offer testing and recommend treatment to known sexual partners

1. The disease

Infectious agent

Neisseria gonorrhoeae, a Gram-negative diplococcus.

Reservoir

Humans

Mode of transmission

Gonococcal infection is highly contagious and is usually transmitted through unprotected vaginal, anal or oral sexual contact with an infected person. Transmission is by direct inoculation of infected secretions from one mucous membrane to another (1, 2). Primary sites of infection are mucous membranes of the urethra, endocervix, rectum, pharynx (3) and conjunctiva (1, 4).

Gonococcal infection can be transmitted perinatally from an infected mother to her child during childbirth, resulting in ophthalmia neonatorum (5). It can also be transmitted via non-sexual means to infants and young children via fomites, although such cases are rare. Flies and fomites have been implicated in the spread of gonococcal conjunctivitis (6).

People with asymptomatic infections can transmit the infection to others (7).

Natural infection from *N. gonorrhoeae* does not elicit immunity (8). Gonococcal strains are antigenically heterogeneous (9), however reinfection (10) with the same strain is possible.

Incubation period

The time elapsed between the exposure to *N. gonorrhoeae* to when the symptoms first become apparent varies depending on the site of infection.

The incubation period for symptomatic urethral gonorrhoea in men is usually 2-5 days, but may be 1-14 days or longer (11).

The incubation period for urogenital gonorrhoea in women is more uncertain as infections in many women are asymptomatic. If asymptomatic, gonococcal infection in women may not be identified unless complications (such as pelvic inflammatory disease (PID)) have developed. When symptomatic, symptoms probably develop within 10 days of infection (12).

Infectious period

N. gonorrhoeae is a rapidly dividing organism, and patients should be regarded as infectious from the time of exposure for as long as organisms persist. When treated, a patient should be considered infectious until 7 days after treatment, though organisms may be cleared more rapidly than this (13).

The infectious period for untreated gonorrhoea is not well-described and may vary according to the site of infection (14). For example, the duration of asymptomatic rectal gonorrhoea may be up to a year whereas pharyngeal gonorrhoea infection usually clears spontaneously within 12 weeks (15).

Clinical presentation and outcome

Gonococcal infection is manifested by a wide range of presentations including asymptomatic and symptomatic local infections, local complicated infections and systemic dissemination. Up to 80% of women and 10-15% of men with urogenital gonorrhoea have no genital symptoms (13). Rectal and pharyngeal infections are usually asymptomatic in both males and females.

Men:

Urethral infection is symptomatic in 80% of cases. The predominant symptom in men with urethral infection is urethral discharge or dysuria with variable degrees of oedema and erythema of the urethral meatus (16). Urethral infection in men is usually symptomatic within 2-5 days following exposure. Local complications include penile oedema, periurethral and paraurethral abscesses, urethral stricture, epididymo-orchitis, and prostatitis. Bilateral epididymitis could potentially impair fertility (16).

Women:

Gonococcal infection usually involves the endocervix and/or urethra and is often asymptomatic. When symptomatic, symptoms may include increased vaginal discharge and dysuria, and probably occur within 10 days following exposure. Local complications include Bartholin's abscess, lymphangitis and ascending infection involving the uterus, fallopian tubes, or ovaries. This may result in endometritis, salpingitis and pelvic inflammatory disease (PID), with a risk of subsequent tubal infertility. If asymptomatic, gonococcal infection in women may not be identified unless complications have developed.

Gonococcal vaginitis is the most common form of gonorrhoea in pre-pubertal girls where the non-oestrogenised vaginal mucosa can be infected.

Infection during pregnancy can result in premature rupture of membranes and premature delivery. *N. gonorrhoeae* can be transmitted to the neonate, usually at delivery, resulting in ocular and/or anogenital infection. Acute purulent conjunctivitis occurs in the newborn usually 2-5 days after birth. Eyelid oedema and chemosis can progress rapidly to keratitis and endophthalmitis. This requires early recognition and treatment to avert blindness.

Other sites:

Rectal infections are usually asymptomatic. If symptoms occur they may include pruritus, mucopurulent discharge, rectal pain and bleeding or proctitis. The prevalence of rectal infection in women is positively correlated with the duration of endocervical infection.

Pharyngeal infections may be an important source of urethral and potentially rectal infections in men who have sex with men (MSM). It is estimated that 90% of pharyngeal infections are asymptomatic, with a spontaneous cure rate reported as 100% at 12 weeks (16).

Gonococcal conjunctivitis, though rare, is a medical emergency at any age. In adults it is often attributed to auto-inoculation. The clinical presentation ranges from mildly symptomatic to marked photophobia with purulent discharge and formation of crusts accompanied by sore red eyes (17, 18). Gonococcal conjunctivitis is sight threatening (18, 19) and must be treated urgently.

Disseminated gonococcal infection (DGI) can lead to a range of clinical symptoms including arthritis or arthralgias, tenosynovitis, and multiple skin lesions. Bacteraemia, fever, endocarditis and meningitis have been also been reported with DGI (20). DGI is estimated to occur in 0.5 to 3 percent of patients infected with *N. gonorrhoeae* (21).

Persons at increased risk of disease

Any person can acquire gonococcal infection through unprotected vaginal, anal or oral sex with an infected person. In Australia, people at highest risk of gonococcal infection are MSM, female partners of MSM, sex workers, and young Aboriginal and Torres Strait Islander people in remote areas. Infection does not confer immunity against *N. gonorrhoeae*, so these groups are at risk of reinfection (8).

Disease occurrence and public health significance

Heterosexual transmission of gonorrhoea among urban non-Indigenous communities is an emerging issue for Australia (22). Gonorrhoea notification rates in Australia have increased by 110% between 2013 and 2019 (66 to 139 per 100,000 populations). Rates increased in both men (by 117%) and women (by 93%) (23). The ratio of notifications to Medicare-rebated gonococcal infection tests increased in both men and women between 2013 and 2017 (24). The increase in notifications may be due to a number of factors, including the introduction of more sensitive diagnostic tests like nucleic acid amplification testing (NAAT), increased testing of extragenital sites, increase in routine sexually transmissible infections (STIs) screening and ongoing high levels of unprotected sex. Co-infection with other STIs is common (25).

In Australia, the gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population was five times that in the non-Indigenous population (585.7 per 100 000 compared to 115.6 per 100 000) in 2019 (22). In the Aboriginal and Torres Strait Islander population residing in remote/very remote areas, the notification rate of gonorrhoea was nearly 24 times higher than in

the non-Indigenous population (22). The gonococcal infection [gonorrhoea] notification rate here was reported to be 1,326 per 100,000. Among both Indigenous and non-Indigenous populations, rates are highest among young people (15-24 year olds) (26).

The reasons for these disparate rates are complex. They include drivers of social disadvantage such as poverty, income and education inequality, and challenges accessing culturally appropriate health care and specialist STI services. These factors are known to be associated with higher STI rates in populations globally (27).

Higher gonococcal infection notification rates in the MSM community have been observed in recent years (22). The increase in notifications is most likely due to multiple factors including increased screening and use of more sensitive tests to screen and diagnose the infection. Individual-level risk behaviours, such as number of lifetime sex partners, rate of partner exchange and frequency of unprotected sex, may also contribute to the increased notifications observed in MSM (28, 29).

The development of antimicrobial resistance in *N. gonorrhoeae* has led to an increase in the prevalence of multidrug resistant (MDR) and extensively drug resistant (XDR) gonococcal infection^{*}, which includes resistance to extended-spectrum cephalosporins (30,31). Isolates of strains exhibiting critical antimicrobial resistance to ceftriaxone (MIC > 0.5 mg/L) and with high-level resistance to azithromycin (MIC ≥ 256 mg/L) have been reported (32, 33), raising concerns that gonorrhoea may become challenging to treat in certain circumstances.

2. Routine prevention activities

A combination of coordinated prevention activities is more effective than an isolated, single activity. Testing should be done on all individuals requesting sexually transmissible / blood-borne infection screening.

Sexual health promotion and education programs aim to increase awareness of STIs and empower people to adopt safer sex practices, such as using condoms. These programs are targeted to priority populations including young people, MSM, Aboriginal and Torres Strait Islander populations, and sex workers.

Regular testing is encouraged for:

- individuals with multiple and new partners to limit onward transmission
- individuals who have had sexual contact with a person with confirmed or suspected gonococcal infection
- individuals with a history of previous gonococcal infection
- individuals with a history of other STIs such as syphilis, chlamydia and human immunodeficiency virus (HIV)
- sex workers
- men who have sex with men, and
- Aboriginal and Torres Strait Islander people aged 15–29 years.

3. Surveillance objectives

- Monitor disease trends to direct and evaluate public health strategies.
- Enable timely notification of cases to facilitate prompt management of [high priority] cases and contacts (testing and treatment).

^{*} In this document, MDR and XDR *N. gonorrhoeae* are defined as by Tapsall et. al. (31). In brief, MDR-*N. gonorrhoeae* are defined as those infections resistant to one of the category I antibiotics (which includes injectable extended spectrum cephalosporins, oral extended-spectrum cephalosporins and spectinomycin) and at least two of the antibiotic classes listed in category II (which includes penicillins, fluoroquinolones, azithromycin, aminoglycosides and carbapenems). XDR-*N. gonorrhoeae* are defined as those resistant to two or more of the antibiotic classes in category I and three or more in category II (30).

- Enable timely detection of clusters and outbreaks to facilitate prompt investigation and implementation of interventions to control transmission.
- Monitor antimicrobial susceptibility to identify extensively drug resistant strains to facilitate urgent case management and contact tracing, and to evaluate treatment guidelines.†

Data management

Confirmed cases should be entered into the jurisdictional notifiable diseases database [NCIMS] within three working days for high priority cases and five working days for routine cases following laboratory notification.

If an individual has *N. gonorrhoeae* detected in more than one anatomical site for specimens taken on the same day, then these positive results will be counted as a single case.

Where a positive culture or NAAT test is reported following a previous notification, this report should be counted as a new infection if more than 21 days have passed since completion of appropriate treatment.

4. Communications

Confirmed cases must be notified to the state/ territory Communicable Diseases Branch (CDB) (via PHUs in some jurisdictions) as routinely required under public health legislation [NSW *Public Health Act 2010*] of that jurisdiction. This will involve notification by the diagnosing laboratory and in some jurisdictions also by the diagnosing clinician. The CDB will notify the case to the National Notifiable Diseases Surveillance System (NNDSS).

The patient should be advised that gonococcal infection is a notifiable disease and that it is necessary for the jurisdictional health department [NSW Health] /PHU to be notified of this infection. It is the responsibility of the treating clinician to do the case follow-up including contact tracing and partner notification; [NSW] PHUs may elect to do this under specific circumstances if resources permit.

5. Case definition

The case definition may have been updated since the publication of this guideline. Please check the case definitions [webpage](#) on the Australian Department of Health's website (www.health.gov.au/internet/main/publishing.nsf/Content/cdna-casedefinitions.htm) for the latest version.

Reporting

Only confirmed cases should be notified.

Confirmed case

A confirmed case requires **laboratory definitive evidence** only.

Laboratory definitive evidence

1. Isolation / detection of *Neisseria gonorrhoeae* by culture

OR

2. Detection of *Neisseria gonorrhoeae* by nucleic acid testing

† WHO recommends that if the proportion of resistant strains from tested samples is $\geq 5\%$, treatment guidelines need to be reviewed and modified. All isolates of gonococci should be sent to the Australian Gonococcal Surveillance Programme (AGSP) reference laboratory for susceptibility testing (www.health.gov.au/internet/main/publishing.nsf/content/cda-pubs-annlrpt-gonoanrep.htm).

6. Laboratory testing

Testing guidelines

Patients with probable gonorrhoea on clinical appearance, or who have tested positive by NAAT, should have a swab collected from that site sent for culture and susceptibility testing where possible, prior to treatment. This is increasingly important with the emergence of resistance to antibiotics routinely used for treatment.

On-site microscopy, if available, of a Gram-stained smear from a man with a urethral discharge can provide a rapid presumptive diagnosis with high (>95%) sensitivity and specificity. Due to poor sensitivity and specificity, microscopy is not recommended for cervical, vaginal, rectal and throat infections.

There [are no indicated blood tests] for gonorrhoea.

NAAT is the mainstay of gonorrhoea diagnosis (34). These tests are usually combined with a NAAT for chlamydia. NAATs that provide some limited information on antibiotic sensitivity are becoming available but are not yet widely used in diagnostic laboratories.

Rapid (90 minutes) point-of-care NAAT tests for gonorrhoea and chlamydia using the GeneXpert® system are becoming available, greatly reducing the time to treatment. These point-of care tests perform as well as laboratory-based NAATs. Positive results from point-of-care tests that are not confirmed with conventional laboratory testing should be notified to the relevant state/territory health authority by the person performing the test. It is important that swabs are also collected where possible, so that antibiotic susceptibility testing can be undertaken.

Rapid lateral flow tests for gonorrhoea are not recommended due to poor performance.

7. Case management

[PHUs are encouraged to record in NCIMS the Indigenous status of all notifications of gonorrhoea using electronic medical record systems or other methods when there is capacity to do so.

Notifications that should be managed as described below are those:

- infections due to gonococci critical antimicrobial resistance and those with decreased susceptibility to ceftriaxone
- in persons under 16 years of age
- where a cluster is detected or notified

In other circumstances, PHUs do not routinely follow up notifications of gonorrhoea, but may elect to do so.

Response times

Prioritisation of the public health response to a case of critical antibiotic resistant gonorrhoea is HIGH. Where a case of critical antimicrobial resistant gonococcal infection [or a case of gonococcal infection with decreased susceptibility] is identified, the relevant PHU should respond within 1 working day following the [*Standard Operating Procedures: Gonococcal infections with critical antimicrobial resistance or decreased susceptibility to ceftriaxone*] procedure outlined in [Appendix D](#).

Critical antimicrobial resistant gonococcal infection is defined (30) as gonorrhoea with:

- High level resistance to azithromycin (MIC \geq 256mg/L) OR
- Resistance to ceftriaxone (MIC > 0.5mg/L) OR
- Both of the above (including MDR and XDR isolates)

[Gonococcal infection with decreased susceptibility to ceftriaxone is defined as an isolate reported by a laboratory to have decreased susceptibility to ceftriaxone on culture-based susceptibility testing. Infections due to gonococci with decreased susceptibility to ceftriaxone should be managed within 1 working day of notification according to the procedure in [Appendix D](#).]

For all other gonorrhoea cases, the public health response is ROUTINE. Within 5 working days of notification, [PHU staff must] enter confirmed cases into the jurisdictional database [NCIMS] and [should]

begin follow up where there is capacity to do so, using the relevant state/territory disease investigation form (example provided in [Appendix C](#)).

Follow up should [always be undertaken for children aged < 16 years and any identified clusters, and where done] be prioritised for the following populations—pregnant women (where known), sex workers (where known), and people with repeat notifications within 12 months. A cluster is an unusually high incidence of a disease in close proximity in terms of both time and geography.

Response procedure – routine

Case investigation

For routine cases, case management is the responsibility of the diagnosing clinician; in some jurisdictions public health units elect to follow up all cases, whereas in others the involvement of public health units is confined to specific circumstances. Jurisdictions may adapt the following in accordance with local practice and resourcing. Any public health response to a notification will usually be carried out by, or in collaboration with, the case's clinician.

For a confirmed case of gonorrhoea the diagnosing clinician should:

- ensure specimens are collected for culture and antimicrobial susceptibility from all anatomical sites in cases that are NAAT positive for *N. gonorrhoeae*, and from presumptive cases prior to treatment
- confirm results of relevant pathology tests and review antibiotic susceptibility results for all cultures
- obtain demographic information (including age, sex, postcode, gender, country of birth and indigenous status)
- confirm onset date and symptoms
- obtain a detailed history, which should include sexual history, recent overseas travel and occupational exposures
- ensure that correct treatment has been administered to both cases and contacts
- ensure a follow up visit for test-of-cure, and assessment of symptom resolution as relevant
- seek expert advice for all treatment failures or before using alternative treatments
- ensure testing for other STIs, including HIV and syphilis
- where a case of gonorrhoea is reported in a child <16 years old, ensure that jurisdictional legislative child protection reporting requirements have been fulfilled [See [Cases under 16 years](#) below]

Case treatment

All presumptive/confirmed cases of gonorrhoea should be offered recommended treatment. See the [Australian STI Management Guidelines](#) (13) for more information.

Appropriate specimens for antimicrobial susceptibility testing should be obtained prior to initiating treatment.

The diagnosing clinician is responsible for treatment, following appropriate guidelines.

Treatment options are dependent on where the infection was acquired.

Treatment failures should be investigated using culture to allow for antimicrobial susceptibility testing.

Special consideration should be given to pregnant women undergoing gonococcal infection treatment regarding medication risk [and to ensure that treatment, test of cure, partner treatment and re-testing later in the pregnancy are undertaken if indicated]. Neonates born to infected mothers must be tested and treated for gonococcal infection; expert advice should be sought.

Refer to the [Australian STI Management Guidelines](#) (13) for more information.

Education

The case should receive education covering gonococcal infection, risk of infection, prevention, and contact tracing. The information should include the risks of reinfection, and the need for the infected person to abstain from sex until 7 days after the completion of treatment and until the symptoms have resolved.

Patients diagnosed with gonococcal infection should also be educated about antimicrobial resistance and the need to return to care if symptoms do not resolve in 3–5 days, and the importance of test of cure. The case should be provided further sexual health education and prevention counselling when reviewed in 1 week.

Refer to the Disease fact sheet ([Appendix A](#)).

Isolation and restriction

The case should be advised to have no sexual contact (including vaginal, oral and anal sex) for 7 days after the completion of treatment. The case should also be advised to have no sexual contact with partners from at least the last 2 months until the partners have been tested and treated if necessary.

Active case finding

Sporadic cases

Regular screening is recommended for high-risk groups (see [Section 3](#) – Routine prevention activities). Additionally, people who have a clinical presentation consistent with gonorrhoea should be tested, including a swab for culture. Contact tracing should be undertaken for every diagnosed gonococcal infection to identify additional cases (see [Section 10](#) – Contact management).

People who are diagnosed with *N. gonorrhoeae* strains with critical antimicrobial resistance [and those with decreased susceptibility to ceftriaxone] and their contacts, should be managed as per [Appendix D](#) – [‘*Standard Operating Procedures: Gonococcal infections with critical antimicrobial resistance or decreased susceptibility to ceftriaxone*’].

Clusters

Where clusters are identifiable and defined by time, person and place, an outbreak investigation should be initiated by PHU staff in conjunction with local sexual health services, [CDB] and other health services as appropriate. For clusters detected in remote Aboriginal communities, consultation with and involvement of local Aboriginal community-controlled health services is advised. Where a cluster of gonococcal infection notifications is associated with a brothel or sex on premises venue, refer to [Section 11](#) – Special situations.

[Cases under 16 years]

As a mandatory reporter, any health worker who has reasonable grounds to suspect that a child or young person may be at risk of significant harm must make an immediate report to the Community Services Child Protection Helpline on 132 111.

Where a case of gonorrhoea is reported in a child under 16 years of age, the PHU must send a letter to the doctor who requested the test, asking the doctor to undertake an assessment of the risk of harm according to the mandatory reporting guidelines and obligations under the NSW *Children and Young Persons (Care and Protection) Act 1998*.

Where a case of gonorrhoea is reported in a child aged 12 years or under, the PHU must also directly contact the doctor (eg by telephone) to ensure that mandatory reporting obligations have been addressed. If no contact can be made, the PHU should contact the Child Wellbeing Unit (1300 480 420) or make a direct report to the Community Services Child Protection Helpline (132111).

[Indigenous status]

The PHU should make reasonable attempts to record in NCIMS the Indigenous status of all cases under 16 years, for example by checking the LHD patient management system and/or calling the diagnosing doctor.

All actions should be documented in the NCIMS record.

8. Environmental evaluation

Not applicable

9. Contact management

The treating clinician is primarily responsible for contact training/partner notification. When patients are diagnosed with a treatable sexually transmitted infection it is vital that testing and treatment of their sexual partners is properly considered, discussed, and supported. Research shows that a substantial proportion of the partners of such patients will be infected but unaware of this, warranting efforts to ensure partner notification is facilitated and completed successfully. Treatment of infected partners will help them avert complications and reduce the duration of infectiousness, potentially curbing further sexual transmission (35). [See Australasian Contact Tracing Guidelines] www.ashm.org.au/products/product/1976969981

Partner notification/contact tracing includes a range of supportive interventions intended to assist cases get their partners tested and treated. Establishing rapport and engagement with cases is important to facilitate identification of contacts.

Timely contact tracing/partner notification should be prioritised and performed in all cases of confirmed infection, and the treating clinician is primarily responsible for this. High priority should be given to cases with critical antimicrobial resistance [and those with decreased susceptibility to ceftriaxone], minors (under 16 years of age), pregnant women and outbreaks, and public health units should oversee this.

There are various resources that clinicians may utilise in supporting the case to undertake prompt partner notification, such as web-based notification services‡. Clinicians may seek assistance, advice and support for contact tracing via sexual health services or PHUs§.

Identification of contacts

A contact is anyone who has had unprotected sexual contact (including oral and anal sex) with a person with gonorrhoea. A neonate born to an infected mother is also considered a contact. Contacts should be traced back for a minimum of 2 months according to the case's sexual history.

It is the responsibility of the diagnosing clinician to initiate contact tracing discussions with the case. Clinicians should then follow up with the case after one week to ensure partners have been notified or to offer more contact tracing support.

Highest priority should be given to cases with critical antimicrobial resistance and [cases with decreased susceptibility to ceftriaxone] ([Appendix D](#)), pregnant women, minors and outbreaks ([Section 11](#) – Special situations). In the case of cases with critical antimicrobial resistance [and those with decreased susceptibility to ceftriaxone], the clinical service treating the case may be best placed to undertake contact tracing, but it is the responsibility of the PHU to ensure that it has been undertaken.

Infants who may have been exposed to gonococcal infection during vaginal delivery require urgent identification, follow up and treatment.

Treatment of contacts

Recommended treatment should be offered to all contacts. See [Australasian Contact Tracing Manual – Gonorrhoea](#) (35) and the [Australian STI Management Guidelines](#) (13) for more information.

All contacts should be treated presumptively with recommended gonococcal infection treatment. Appropriate specimens for antimicrobial susceptibility testing should be obtained prior to initiating treatment.

‡ These sites can help your patient to tell their partners that they need to get tested.

- www.letthemknow.org.au
- www.thedramadownunder.info (for men who have sex with men (MSM))
- www.bettertoknow.org.au (for Aboriginal and Torres Strait Islander people)

§ Resources to support clinicians:

- [STI/HIV Testing Tool](#)
- [Contact Tracing Manual](#)
- [STI Contact Tracing for General Practice](#) ([ThinkGP](#) online module)

Special consideration should be given to pregnant women undergoing gonococcal infection treatment regarding medication risk. Neonates born to infected mothers must be tested and treated for gonorrhoea; expert advice should be sought.

Education

Education on prevention of gonococcal infection should be provided for contacts (as for cases).

Isolation and restriction

The contact should be advised to have no sexual contact (including vaginal, oral and anal sex) for 7 days after the completion of treatment. The contact should also be advised to have no sexual contact with partners from at least the last 2 months until the partners have been tested and treated if necessary.

10. Special situations

Sex Workers

The prevalence of all STIs in sex workers is equivalent to the general population, but there has been an increase in the incidence of chlamydia and gonorrhoea in this population in recent years (13, 36).

Very high compliance with safe sex practices is reported within the Australian sex industry, but lower consistent condom use has been noted for oral sex than vaginal/anal sex (37). This may represent a lower awareness of the risk of pharyngeal infection and emphasises the need for targeted health promotion initiatives in this area, e.g., additional education around pharyngeal infection should be provided in the context of any gonococcal infection.

Within the sex worker population, some groups who are more marginalised from health services, such as street-based sex workers, report higher rates of STIs (36). These groups are a high priority for screening. Other more marginalised sub-populations of sex workers include sex workers who work in isolation, mobile sex workers, sex workers in rural and remote areas, migrant and culturally and linguistically diverse sex workers, Aboriginal and Torres Strait Islander people engaged in sex work, male sex workers, trans and gender-diverse sex workers, sex workers with HIV, people with complex needs and people from other priority populations.

As sex workers and their clients are often anonymous, client contact tracing may not be feasible. Contact tracing of non-paying partners should be a priority, particularly in cases who report intermittently or never using condoms with non-paying partners.

Notification of a cluster of gonococcal infections associated with a brothel requires a public health response [Notify NSW CDB]. Contact by specialist health service personnel (provider-led referral) may be the preferred method. Involvement with sexual health clinical services and sex industry outreach is important to ensure sensitivity in the approach and maintenance of trust.

Remote Aboriginal and Torres Strait Islander Communities

The rates of STIs are disproportionately high in remote and very remote Aboriginal communities compared to the urban non-Aboriginal and urban Aboriginal population. Even though the rates of HIV infection are comparable to the non-Indigenous populations in most geographic areas, the high rates of untreated gonorrhoea heighten the probability of HIV transmission (24), making this group potentially more vulnerable to HIV.

Treatment and public health management of individual cases will usually be decided by the diagnosing clinician. Seek advice / counselling from local Aboriginal community-controlled health services or health council.

A successful and sustainable comprehensive sexual health program in this context requires sexual health to be integrated as a core component of service delivery within remote primary health care facilities. Evidence suggests that implementing a comprehensive sexual health program, including opportunistic STI screening integrated into routine primary health care practice, can lead to early case detection and timely treatment and follow up of individuals diagnosed with STIs (38, 39).

Special considerations in this context include:

- Offering opportunistic testing when Aboriginal and Torres Strait Islander people who are asymptomatic attend a health service, especially young people aged 15-30 years (or from age of first sexual exposure up to 34 years if from remote and very remote areas).
- Even if all tests are negative, clinical encounters can be used to educate about safe sexual behaviours and risk minimisation. Active reminders for regular screening tests and an annual STI check should be offered.
- A lower threshold for presumptive treatment. Time until test results are available may be longer in regional/remote areas than in urban areas. As a result, failure to return for results may be more common.
- Treatment protocols for gonorrhoea are different in some regional/remote areas of Australia due to regional patterns of antibiotic resistance (13).
- Contact tracing is important and best undertaken when appropriate and culturally sensitive support services are readily available to both the index case and contacts. Working in partnership with the local Aboriginal community-controlled health services, health councils, and respected community members is invaluable.
- Transport of cultures - Gonococci are highly susceptible to environmental conditions and transportation of specimens from the clinic to the laboratory will reduce the viability of the organisms. Protracted travel times with consequent specimen degradation is more likely to occur in regional and remote areas where specimens need to be transported to a distant laboratory.

The swabs should be inserted into a non-nutritive transport medium such as Stuart or Amies and stored at 40°C before transport. Using a non-nutritive transport medium, the isolation rate after transportation of specimens at room temperature (20–25°C) is approximately 100% within 6 hours and more than 90% within 12 hours. After 48 hours, however, the number of gonococci decreases and recovery may no longer be possible, especially in specimens from asymptomatic patients that contain small numbers of organisms.

When a transit time of more than 48 hours is expected, nutritive (growth) transport systems that incorporate a culture medium and provide an atmosphere with enhanced CO₂ (stored at 36±1°C before transport) should be used when it is required to transport swabs for culture (40).

- Response to an outbreak in an Aboriginal and Torres Strait Islander community should be done in partnership with the local community-controlled health service, particularly when community engagement strategies are planned and implemented.

Antimicrobial Resistant N. gonorrhoeae

Drug resistant *N. gonorrhoeae* is an emerging public health issue. The bacteria have developed resistance to all classes of antibiotics used for treatment, and clinical treatment failure of infections caused by drug resistant strains has been reported (41-45).

Occurrences of high-level azithromycin-resistant (MIC value ≥ 256 mg/L) gonococcal infection amongst MSM and heterosexuals have been reported (46, 47). Decreased susceptibility to ceftriaxone (MIC value ≥0.125-≤0.5 mg/L) has also been reported nationwide (46, 48).

Penicillinase-producing *N. gonorrhoeae* is uncommon (48) in remote Aboriginal communities in the NT and northern WA, and oral amoxicillin with probenecid and azithromycin is still recommended as first line treatment in these areas. Refer to the [CARPA manual](#) for more guidance on treatment in remote settings (50). A specialist referral is recommended to guide a tailored treatment for critical antimicrobial resistant gonococcal infection.

Refer to [Appendix D](#) for more information on gonococcal infections with critical antimicrobial resistance [and with decreased susceptibility to ceftriaxone].

Cases among travellers on aeroplanes

Not applicable

11. References and additional sources of information

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12. NSW Jurisdiction specific issues

Jurisdiction specific issues are localised for NSW included within the guideline text above as indicated by [hard brackets].

13. Appendices

- **Appendix A:** Disease Fact sheet
- **Appendix B:** Public Health Unit Check list
- **Appendix C:** Disease Investigation form
- **Appendix D:** Public Health Response to critical antibiotic resistant gonococcal infection