Gonorrhoea

# Cause

* *Neisseria gonorrhoeae*
* There is higher prevalence among
  + Men who have sex with men (MSM), especially if they take PrEP
  + Remote Aboriginal and Torres Strait Islander communities
  + Street based sex workers
  + Sexual contacts of gonorrhoea
* In recent years there is a rising notification rate among heterosexual male and females.

# Clinical presentation

* Gonorrhoea can lead to genital as well as extragenital (pharyngeal and rectal) infection.
* In women infection can cause cervicitis which may be asymptomatic or result in vaginal discharge.
  + Upper genital infection in women can lead to pelvic inflammatory disease.
* In men gonorrhoea can cause urethral infection which is characterized by a purulent urethral discharge.
  + Urethral gonorrhoea usually presents with urethral discharge but can be asymptomatic in some men.
* In MSM infection of the pharynx and rectum are common and may be present alongside urethral infection.
  + Infections of the pharynx are asymptomatic.
  + Rectal infections are usually asymptomatic but in a proportion cause symptoms of proctitis with anal pain and discharge.
  + The anal discharge may be purulent.
* Conjunctival infection can occur in neonates born to infected mothers and in adults via exposure to infected genital secretions.
* Disseminated gonococcal infection, characterized by arthritis and skin lesions is rare.

# Diagnosis

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| **Diagnosis in males** | | |
| **Test** | **Site/Specimen** | **Comments** |
| NAAT | FPU | If MSM, also collect anal and pharyngeal swab even if asymptomatic at these sites. |
| NAAT | Anorectal swab | If MSM, and patient declines anal examination or has no anorectal symptoms, instruct in self-collection  Self-collection is as sensitive as those taken by a clinician and may be preferred by some men. |
| NAAT | Pharyngeal swab | Collect if MSM. Self-collection is as sensitive as those taken by a clinician and may be preferred by some men.  Requires swabbing of the tonsils as well as the posterior oropharynx. |

NAAT – Nucleic Acid Amplification Test

FPU – First pass urine

MSM – Men who have sex with men

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| **Diagnosis in females** | | |
| **Test** | **Site/Specimen** | **Comments** |
| NAAT | Endocervical swab | Best test if speculum examination is undertaken. |
| NAAT | Self-collected vaginal swab | As sensitive as clinician taken swabs, and are more acceptable to many women. |
| NAAT | FPU | If endocervical swab/self-collected vaginal swab cannot be taken e.g. if patient requests. Not as sensitive as self-collected vaginal swab. |
| NAAT | Anorectal swab | If patient has had anal sex or has anorectal symptoms or requests test.  If patient declines anal examination, instruct [self-collection](file:///C:\Users\he11584\AppData\Local\Microsoft\Windows\Temporary%20Internet%20Files\Content.Outlook\E1TFS3LE\link). |

NAAT – Nucleic Acid Amplification Test

FPU – First pass urine

* Nucleic acid amplification tests (NAAT) such as transcription mediated amplification (TMA), polymerase chain reaction (PCR) and strand displacement amplification (SDA) are more sensitive than culture in detecting gonococci.
  + However, false positive gonococcal NAAT results do occur especially in low prevalence populations.
  + Interpret unexpected positive results with caution in low-risk patients.
  + Confirmatory testing by the laboratory using a NAAT test that targets a different part of the *N. gonorrhoea* genome can improve the specificity of NAATs for gonorrhoea and help to exclude false positive results.
  + Patients who have been screened positive for gonorrhoea using AC-2 testing and who are recalled for treatment should have culture taken from the NAAT-positive site prior to treatment: urethral, pharyngeal, rectal, or cervical. This includes asymptomatic MSM for urethral swab as culture can be positive even where discharge is absent.
* Culture provides an isolate for antimicrobial susceptibility testing which is important for surveillance of antimicrobial resistance, which is growing.
* Microscopy can help confirm a diagnosis of gonorrhoea, and therefore guide treatment at the initial visit, by identifying gram negative intracellular diplococci (GNDC) in a Gram stain of the discharge obtained from a urethral swab, endocervical swab or anal swab.
  + GNDC are virtually always seen in the discharge from men with urethral gonorrhoea, but less frequently in cases of gonococcal cervicitis or proctitis.
  + *Neisseria meningitidis*, though an uncommon cause of urethritis and cervicitis can cause a purulent discharge clinically indistinguishable from gonorrhoea.
  + GNDC seen in meningococcal discharges are morphologically identical to gonococci.

Testing methods depend on the risk group of the individual.

## Men who have sex with men (MSM)

* Asymptomatic MSM should be screened for pharyngeal and rectal gonococcal at least once a year, with more frequent screening of higher risk men as part of comprehensive testing for other STI and HIV.
* MSM taking PrEP should be screened for gonorrhoea at their 3 monthly PrEP visits.
* Screening of MSM should include urine (gonorrhoea and chlamydia) and pharyngeal (gonorrhoea and chlamydia) and anal (gonorrhoea and chlamydia) swabs.

## Heterosexual men

* Screening of heterosexual men for urethral gonorrhoea is recommended because of the increasing prevalence of this infection among heterosexuals.
* Men who present with urethral discharge, particularly purulent discharge and/or where there is risk for gonorrhoea (e.g. MSM, overseas contact, contact with gonorrhoea) should be tested for gonorrhoea using two methods: (1) urine for NAAT testing and (2) a swab of the urethral discharge. for culture.
* Culture should be obtained at presentation prior to treatment for antimicrobial susceptibility testing.

## Heterosexual women

* Screening of women for gonorrhoea is recommended.
* Women who present with vaginal discharge should be examined for signs of cervical inflammation and tested for gonorrhoea, especially where there is increased risk for gonorrhoea (overseas contact, contact with gonorrhoea).
  + Please refer to MSHC management guideline on vaginal discharge for other relevant tests in women with discharge.
* Women should be tested for gonorrhoea by NAAT testing from a vaginal or cervical swab.
  + Urine can be used but may be less sensitive.
  + If gonorrhoea NAAT is positive then a cervical swab for gonorrhoea culture should be obtained prior to treatment for antimicrobial susceptibility testing.

## Contacts of gonorrhoea

* Individuals who report sexual contact with gonorrhoea should be screened for gonorrhoea by NAAT:
  + Heterosexual males: pharyngeal swab and urine
  + Females: pharyngeal swab and cervical swab
  + MSM: pharyngeal and anal swabs and urine
* Treatment for gonorrhoea is not routinely offered to asymptomatic individuals reporting contact with gonorrhoea because a proportion will be negative for gonorrhoea, therefore avoiding administration of ceftriaxone.
  + However, treatment can be offered if the patient prefers, has symptoms, or is unlikely to return for the test result or treatment.
* If the contact is being treated for gonorrhoea at the initial visit gonorrhea culture of these sites should also be performed

# Management

## Index patient

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| **Condition** | **Recommended** | **Extra comments** |
| Uncomplicated genital or anorectal gonorrhoea | **Ceftriaxone 500 mg in 2 ml of 1% lignocaine, IM stat**  PLUS  **Azithromycin 1 g PO, stat** | Recommendations on the treatment of gonorrhoea are changing because of the development of antimicrobial resistance. Resistance to ciprofloxacin and penicillin is now common in Victoria. Combination treatment using ceftriaxone and azithromycin is recommended.  If an individual reports anaphylaxis or severe allergy to cephalosporins or penicillin, advice on alternative treatment should be obtained from a sexual health specialist.  Azithromycin can cause nausea and diarrhoea: patients should be instructed to take azithromycin with food. |
| Pharyngeal gonorrhoea | **Ceftriaxone 500 mg in 2 ml of 1% lignocaine, IM, stat**  PLUS  **Azithromycin 2 g PO, stat as divided dose** (1 g stat followed by 1 g, 6-12 hours later) | Nausea and diarrhoea are more common at the 2g dose of azithromycin compared to 1g dose. |
| Mild-moderate gonococcal epididymo-orchitis | **Azithromycin 1 g PO, stat**  PLUS  **Ceftriaxone 500mg in 2ml of 1% lignocaine IM stat**  PLUS  **Doxycycline 100mg PO, twice daily for 14 days** |  |
| Severe gonococcal epididymo-orchitis | Admit to hospital for intravenous therapy |  |
| Mild-moderate gonococcal pelvic inflammatory disease (PID) | **Azithromycin 1 g PO, stat**  PLUS  **Ceftriaxone 500mg in 2ml of 1% lignocaine IM**  PLUS  **Metronidazole 400mg PO, twice daily for 14 days**  PLUS  **Doxycycline 100mg PO, twice daily for 14 days** |  |
| Severe gonococcal PID | Admit to hospital for intravenous therapy |  |

##### PATIENTS WITH DRUG ALLERGIES

A history of rash or urticaria following penicillin is not necessarily a contraindication to treatment with ceftriaxone. However, if there is a history of *anaphylaxis* following penicillin, or those with documented allergy to cephalosporins, an alternative to ceftriaxone should be used. Treatment choice will depend on prevailing patterns of antimicrobial resistance. Options to be considered for initial treatment include:

 **Azithromycin 2 g together with doxycycline 100 mg twice daily for 7 days.**

Combination therapy is preferred to monotherapy because of concerns about inducing resistance if single-drug therapy is used. There is no evidence for this combination.  
  
A single 2 g dose of azithromycin has been shown to be effective in >95% of uncomplicated susceptible genital, pharyngeal and rectal infections. However, this dose commonly causes significant gastrointestinal upset and should be taken with food (1 g stat followed by 1 g, 6-12 hours later)  
  
In patients unable to tolerate this combination, consider:

 **Azithromycin 2 g alone, as divided dose** (1 g stat followed by 1 g, 6-12 hours later)

or

 **Doxycycline 100 mg twice daily for 7 days**

or

 **Ciprofloxacin 500 mg single dose.**

# High level resistance

Gonococcal isolates with high level resistance to ceftriaxone (MIC ≥0.125) and/or azithromycin (MIC ≥256) should be discussed with a senior MSHC sexual health physician and be reported to the Victorian Department of Health and Human Services and Partner Notification Officers, so that close follow up of the index case with test of cure and outbreak investigation are conducted to limit the further transmission of highly resistant gonorrhoea.

There is a formal procedure that has been adopted by the Victorian Department of Health and Human Services for managing such cases which is initiated when the Partner Notification Officers are contacted. The sexual partners of individuals with highly resistant gonorrhoea should attend MSHC and be tested and if found to have gonorrhoea have test of cure performed after treatment. These partners will be referred to MSHC for testing and treatment by the Partner Notification Officers.

# FOLLOW UP

* For pharyngeal, anal or cervical infection, a test of cure by NAAT should be performed **2 weeks**after treatment is completed. The test of cure should not be done earlier as a positive NAAT result may occur from non-viable *N. gonorrhoeae*. Review also provides an opportunity to:
  + Assess for symptom resolution
  + Confirm contact tracing has been undertaken or offer more contact tracing support
  + Provide further sexual health education and prevention counselling

## Sexual partners

* Partners should be contacted and tested; sex with untreated gonorrhoea infected partners can result in repeat infection.
* Consider referring patients to the Let Them Know website ([www.letthemknow.org.au](http://www.letthemknow.org.au/)) which is designed to support patients to undertake partner notification and which facilitates sending of SMS and email messages to partners.
* Individuals should abstain from sex with their partners until 7 days after both have received treatment.
* Gonorrhoea is notifiable to the Victorian Health Department and a notification form should be completed.