

DEFINITION

Gonorrhoea (GC)

GC is caused by *Neisseria gonorrhoeae* (*N. gonorrhoeae*) and is usually characterized by urethral or cervical discharge. HIV transmission and acquisition is enhanced in people with most sexually transmitted infections. Non-genital gonococcal infection may be present in different systems of the body. A genital GC infection is often asymptomatic in females and symptomatic in males.

Chlamydia

Chlamydia is caused by *Chlamydia trachomatis* (*C. trachomatis*) and can be transmitted through vaginal, anal or oral sex, and during childbirth from mother to child. It is known as the 'silent disease' because more than 50% of males and 70% of females with a genital chlamydial infection have no symptoms and are unaware of their condition.

Non-gonococcal Urethritis (male/female)

Clinical syndrome: inflammation of the urethra with or without urethral discharge. Discharge, if present, can be mucoid, mucopurulent, or purulent.

Trichomoniasis

A sexually transmitted vaginal and urethral infection caused by the urogenital protozoan *Trichomonas vaginalis* (*T. vaginalis*). Trichomoniasis is associated with an increased risk of HIV acquisition and transmission in women.

Women

- *T. vaginalis* is found in the vagina and Skene's ducts, urethra and causes inflammation of the vaginal wall.

Men

- *T. vaginalis* is found in the prostate, urethra, or seminal vesicles.

There are numerous other sexually transmitted infections (STIs). For more complete and specific information on specific syndromes and infections, refer to the most current Canadian Guidelines on Sexually Transmitted Infections.

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SEXUALLY TRANSMITTED INFECTIONS (STIs)
(CHLAMYDIA, GONORRHEA, TRICHOMONIASIS)
INCLUDING NONGONOCOCCAL URETHRITIS

IMMEDIATE CONSULTATION REQUIRED IN THE FOLLOWING SITUATIONS

Female:

- Severe abdominal pain
- Perineal pain
- Suspected ectopic pregnancy

Male:

- Gross hematuria
- Perineal pain
- Severe testicular pain and swelling

Male and Female:

- Severe inflammatory disorders such as Stevens-Johnson syndrome or Reiter's syndrome
 - Reiter's is a syndrome consisting of urethritis (which usually occurs first), arthritis, and conjunctivitis. It occurs mainly in young men and is most frequently caused by Chlamydia.

CAUSES

GC

- *N. gonorrhoeae*
- Incubation period is 2-7 days

Chlamydia

- *C. trachomatis* serovars D to K
- Incubation period from time of exposure to onset of symptoms is 2-3 weeks but can be as long as 6 weeks.

Trichomoniasis

- *T. vaginalis*
- It can survive outside the host 6-24 hours. Usual incubation period is 3-28 days, with average 7 days.

Non-gonococcal Urethritis

- Lower urinary tract infections (UTIs) usually occur as a result of contamination from the client's own gastrointestinal tract (e.g., *Enterococcus*).
- Other causes include *C. trachomatis*, *T. vaginalis*, and *Candida albicans*

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It is the professional responsibility of the RN with additional authorized practice to be aware of, and adhere to, all federal and provincial legislation and follow employer policy around the treatment of minor children.

PREDISPOSING AND RISK FACTORS

- History of previous STIs including HIV
- New and/or multiple sexual partners present or past
- Inconsistent condom use or engagement in unsafe sexual practices (e.g., unprotected sex, oral, genital or anal; sex with blood exchange, including sadomasochism; sharing sex toys)
- Sexually active drug or substance abusers
- Sexual contact with a person with a confirmed or suspected STI infection
- Sex workers and their sexual partners
- Sexually active youth < 25 years of age
- Men who have unprotected sex with men
- No contraception or sole use of non-barrier methods of contraception (e.g., oral contraceptives, Depo-Provera, intrauterine device)
- Street involvement, homelessness and incarcerated people, if associated with having sex
- Anonymous sexual partnering (e.g., bathhouse, rave party)
- Victims of sexual assault/abuse
- Women who have unprotected sex with women
- Loss of vaginal acidity
- Non-gonococcal urethritis can result from chemical irritation from products used and/or those inserted into the vagina (e.g., spermicides, condom, tampon, soaps)

HISTORY

GC is often co-infected with Chlamydia and other STIs such as syphilis or HIV. Transmission and acquisition of HIV is enhanced with all STIs but more so with gonococcal infections.

A detailed, comprehensive sexual history is mandatory and should include:

- Site(s) of sexual contact (vaginal, oral, anal)

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- Sexual orientation (homosexual, bisexual, heterosexual)
- Use of condoms to prevent STIs
- Use of other birth control methods
- Number of sexual partners in recent past
- History of sex with injection drug users
- Exchange of sex for money or drugs
- Date of last menstrual period since last sexual intercourse with most recent partner
- Previous history of STIs
- Present symptoms of STIs in client and in his or her partner(s)
- Injection drug use, needle-sharing
- Enlargement of lymph nodes
- Fever or chills
- Proctitis
- Travel history
- Drug and substance abuse

PHYSICAL FINDINGS

An STI and/or non-gonococcal urethritis may present with the following signs and symptoms:

Women

- Often asymptomatic
- Vaginal discharge
- Vaginal bleeding after sex
- Dyspareunia
- Lower abdominal pain
- Rectal pain and discharge with proctitis
- Genital rashes or lesions
- Postcoital, midcycle, or excessive menstrual bleeding
- Dysuria, frequency, urgency, nocturia, hematuria
- Joint pain, arthritis, conjunctivitis, rash at other body sites, enlargement of lymph nodes, fever

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- Vaginal irritation, itching, or burning
- Symptoms may be recurrent

Men

- Urethral discharge
- Dysuria
- Urethral itch
- Testicular pain and/or swelling or symptoms of epididymitis
- Rectal pain, itch and/or discharge with proctitis
- Men may develop symptoms usually within 2-5 days after exposure to GC/Chlamydia
- Men may also be asymptomatic
- Genital rash or lesions
- Joint pain, arthritis, conjunctivitis, rash at other body sites
- Meningitis

Typical findings of Chlamydia and GC in women may include:

- Mucopurulent cervical or urethral discharge
- Cervicitis
- Cervical friability
- Adnexal tenderness
- May have right upper quadrant tenderness

Typical findings of trichomoniasis in women may include:

- External genitalia reddened
- Copious frothy, greenish-yellow-to-grey, foul-smelling (rancid odour) purulent exudate; cervix excoriated and bleeds easily due to cervical subepithelial hemorrhages or petechiae (often referred to as strawberry cervix)
- Vaginal tenderness

Typical findings of Chlamydia and GC in men include:

- Urethral discharge
- Scrotal swelling and tenderness of epididymis

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Typical findings of trichomoniasis in men include:

- Balanitis
- Balanoposthitis
- Urethral discharge
- Urethral irritation
- Symptoms of prostatitis

Typical findings of non-gonococcal urethritis in females and males include:

- The client usually appears well
- The physical examination should include a clean catch midstream urine sample for urinalysis. Urinalysis may reveal an infectious process exhibiting the following:
 - Cloudy appearance
 - Alkaline pH
 - Hematuria
 - Elevated levels of nitrites (Note: Elevated levels of *Escherichia coli* convert urinary nitrates to nitrite producing positive results on a dipstick. In contrast, staphylococci do not convert this substrate and are not detectable by the dipstick).
- It is recommended that a urine culture and sensitivity be done to determine the causative agent.

DIFFERENTIAL DIAGNOSIS

- Herpes simplex virus
- Bacterial vaginosis (BV)
- Vaginitis due to frequent douching and/or exposure to other irritants
- Pelvic Inflammatory Disease (PID)
- UTI
- Malignancy
- Pyelonephritis
- Reactive arthritis
- Chemical irritation

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COMPLICATIONS

Females

- Pelvic Inflammatory Disease (PID)
- Infertility
- Ectopic pregnancy
- Chronic pelvic pain
- Reactive arthritis
- Disseminated gonococcal infection
- Endometritis
- Salpingitis
- Perihepatitis (Fitz-Hugh-Curtis syndrome)
- Increased risk of cervical squamous cell carcinoma
- Vulvovaginitis

Complications of trichomoniasis are usually associated with pregnancy and may result in:

- Low birth weight infant
- Preterm rupture of membranes
- Preterm delivery

Males

- Epididymo-orchitis
- Acute prostatitis
- Reiter's syndrome
- Infertility (rare)
- Disseminated gonococcal infection
- Urethritis
- Urethral stricture or stenosis
- Abscess

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INVESTIGATIONS AND DIAGNOSTIC TESTS

For Chlamydia and GC

Note: HIV transmission is enhanced in people with concomitant gonococcal infection. Testing for HIV, hepatitis B, hepatitis C, and syphilis is highly recommended at the same time testing is done for Chlamydia and/or GC.

Urine nucleic acid amplification tests (NAATs)

- Urine for NAATs is the test of choice to diagnose Chlamydia and GC. Chlamydia and GC can be tested simultaneously with the same urine sample.
- Urine is the preferred specimen for male and female.
- The most common example of this test is the polymerase chain reaction (PCR).
- Post-exposure testing with a NAAT can be done as soon as desired since it is not necessary to wait for 48 hours after exposure to collect samples as in the case of cultures.
- If a NAAT is used as a test of cure, refer to indications for test of cure in the Monitoring and Follow-Up section.

Other tests

- Offer testing for syphilis, hepatitis B and C, Herpes simplex 1 and 2 and HIV for all clients suspected of having any STI.

For trichomoniasis

- Laboratory Testing
 - Collect vaginal swab in women and a swab of penile discharge in men.

Pregnancy Test

- A pregnancy test must be done for all women of child-bearing age to diagnose/rule out pregnancy.
- The result of the test will help determine treatment.

MAKING THE DIAGNOSIS

Presumptive diagnosis can be made based on history and physical findings.

Definite diagnosis is made by the detection of the organism by any one of the following:

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- *C. trachomatis* nucleic acid in the urine - preferred method
- *C. trachomatis* by culture
- Isolation of *N. gonorrhoeae* from an endocervical/urethral/rectal swab culture
- Positive NAAT for *N. gonorrhoeae* from urine sample
- Non-gonococcal urethritis: positive urine culture and sensitivity
- Diagnosis of Chlamydia/GC/trichomoniasis in a sexual partner

MANAGEMENT AND INTERVENTIONS

Goals of Treatment

- Identify and treat STI
- Provide appropriate treatment for contacts
- Differentiate between various STIs
- Relieve symptoms
- Identify predisposing factors and counsel
- Prevent recurrence
- Prevent spread of disease
- Early detection and prevent complications

Appropriate Consultation

Consult a physician/RN(NP) if unfamiliar with the management of any of the STIs or non-gonococcal urethritis in the following situations:

- Pregnant and lactating women
- Suspected complications of GC, Chlamydia, or trichomoniasis
- GC contracted from overseas
- Children < 12 years of age with suspicion of any STI
- Persistent symptoms despite adequate treatment of any STI
- Allergy to recommended treatment
- Non-urethral, non-genital infections
- Painful or painless genital ulcers both men and women
- Any suspicion of PID, as it is difficult to diagnose PID from clinical features

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- Those who cannot tolerate metronIDAZOLE (e.g., client is an alcoholic with trichomoniasis)

Non-Pharmacological Interventions

- None

Pharmacological Interventions

For current treatment guidelines refer to:

- a) The Saskatchewan Communicable Disease Control Manual, section 5, the last attachment entitled STI Treatment Guidelines at <http://www.ehealthsask.ca/services/manuals/Documents/cdc-section-5.pdf>
- b) The latest version of the Canadian Guidelines on Sexually Transmitted Infections at <http://www.phac-aspc.gc.ca/std-mts/sti-its/cgsti-ldcits/index-eng.php>

All confirmed or suspected cases must be treated.

Directly observed therapy with single-dose regimens is strongly suggested.

Treatment of non-gonococcal urethritis

- Azithromycin 1 g orally single dose
Or
- Doxycycline 100 mg orally q12h for 7 days (contraindicated in pregnancy)
Or
- Amoxil 500 mg orally q8h for 7 days

Treatment of Chlamydia

- When treating clients for Chlamydia, empirically treat the client and the partner for GC as well, even if laboratory confirmation for gonorrhoea is not available. Co-infection with GC is common in those with Chlamydia.

Adults (non-pregnant and non-lactating, urethral and endocervical):

- Azithromycin 1 g orally in a single dose
Or
- Doxycycline 100 mg orally q12h for 7 days

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Alternate Treatment:

- Ofloxacin 300 mg orally q12h for 7 days
Or
- Erythromycin 2 g/day orally in divided doses q6h for 7 days
Or
- Erythromycin 1 g/day orally in divided doses q6h for 14 days

In pregnancy:

- Amoxicillin 500 mg orally q8h for 7 days
Or
- Azithromycin 1 g orally in a single dose if poor compliance is expected with amoxicillin
- Alternative regimens in pregnancy:
 - Erythromycin base 500 mg orally q6h for 7 days **OR** erythromycin base 250 mg orally q6h for 14 days **OR** erythromycin ethylsuccinate 800 mg orally q6h for 7 days **OR** erythromycin ethylsuccinate 400 mg orally q6h for 14 days
- If vomiting occurs more than 1-hour post-administration of single dose medication, a repeat dose is not required.
- If erythromycin, amoxicillin, or any alternate medications has been used for treatment, test of cure should be performed 3-4 weeks after completion of therapy.
- Doxycycline is contraindicated in pregnancy.

Treatment of GC

As of July 2013, treatment of uncomplicated anogenital gonococcal infection in adults and youth ≥ 9 years of age is as follows:

- Preferred:
 - CefTRIAxone 250 mg IM in a single dose
PLUS
 - Azithromycin 1 g orally in a single dose
Or
 - Cefixime 800 mg orally in a single dose
PLUS

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- Azithromycin 1 g orally in a single dose
- Alternate Treatment:
 - Spectinomycin 2 g IM in a single dose **
PLUS
 - Azithromycin 1 g orally in a single dose
Or
 - Azithromycin 2 g orally in a single dose

**Spectinomycin is only available through Health Canada's Special Access Program.

Consult a physician/RN(NP)/medical health officer (MHO) for other gonococcal presentations and for treatment of children < than 12 years of age or when there is allergy to any drugs listed above.

Recommended treatment of uncomplicated anogenital gonococcal infections in men who have sex with men (MSM):

- Preferred Treatment:
 - CefTRIAxone 250 mg IM in a single dose
PLUS
 - Azithromycin 1 g orally in a single dose
- Alternate Treatment:
 - Cefixime 800 mg orally in a single dose
PLUS
 - Azithromycin 1 g orally in a single dose
Or
 - Spectinomycin 2 g IM in a single dose
PLUS
 - Azithromycin 1 g orally in a single dose
Or
 - Azithromycin 2 g orally in a single dose

Treatment for pregnant women and nursing mothers with genital gonococcal infection:

- Preferred Treatment:

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- Cefixime 800 mg orally in a single dose
- Alternate Treatment:
 - CefTRIAxone 250 mg IM in a single dose
 - Or
 - Spectinomycin 2 g IM in a single dose

Treatment for Chlamydia is also recommended when *N. gonorrhoeae* is diagnosed unless testing for *C. trachomatis* is negative.

Treatment Failure in GC

Definition:

- Treatment failure is defined as the absence of reported sexual contact during the post-treatment period AND one of the following:
 - The presence of intracellular Gram-negative diplococci on microscopy in specimens taken at least 72 hours after completion of treatment
 - Or
 - Positive *N. gonorrhoeae* on culture of specimens taken at least 72 hours after completion of treatment
 - Or
 - Positive NAAT of specimens taken at least 4 weeks after completion of treatment

In clients with apparent treatment failure, possibilities include the following:

- Failure to take medication correctly or to finish the course of therapy
- Re-exposure to an untreated partner
- Infection acquired from a new partner
- A false-positive result

Recommended management of primary cephalosporin treatment failures in GC:

- For cephalosporin combination therapy treatment failures (e.g., cefixime 800 mg orally or cefTRIAxone 250 mg IM plus azithromycin 1 g orally)
- Local public health authorities should be promptly notified. This will allow for the STI programs to work with the Public Health Agency of Canada to post alerts

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- related to treatment failures in Canada.
- It is strongly recommended that treatment be guided by antimicrobial susceptibility test results to determine the appropriate antimicrobial agent in consultation with an expert in infectious diseases and local public health authorities.
 - Follow direction from local MHO for further management.
 - A test of cure by culture is strongly recommended and should be collected as per instructions provided in the Monitoring and Follow-up section.

Treatment of trichomoniasis

- MetroNIDAZOLE (Flagyl) 2 g orally stat in a single dose
Or
- MetroNIDAZOLE (Flagyl) 500 mg orally q12h for 7 days
- Instruct client to abstain from drinking alcohol while taking metroNIDAZOLE and for 24 hours after the last dose because of the Antabuse-like side effects (profuse vomiting) of this drug.
- Intravaginal metroNIDAZOLE gel is not effective

Pregnancy

- Trichomoniasis may be associated with premature rupture of the membranes, preterm birth, and low birth weight.
- Symptomatic pregnant women should be treated with metroNIDAZOLE 2 g orally in a single dose for symptom relief. An alternative treatment is metroNIDAZOLE 500 mg orally q12h for 7 days. MetroNIDAZOLE is not contraindicated during pregnancy or in breastfeeding. There is no research to support that treatment will improve pregnancy outcomes related to premature rupture of the membranes, preterm birth or low birth weight.

Lactating women

- MetroNIDAZOLE 500 mg orally q12h for 7 days is preferred
Alternative:
- MetroNIDAZOLE 2 g orally in a single dose if poor compliance is expected.
Withhold breastfeeding for 12-24 hours after high dose metroNIDAZOLE

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treatment.

Sexual partner

- MetroNIDAZOLE (Flagyl) 2 g orally stat in a single dose
- Treat sexual partner regardless of symptoms except for asymptomatic pregnant women. It is not necessary to screen them for trichomoniasis unless they are pregnant and symptomatic.

HIV clients

- Same treatment as non-HIV clients

Client and Caregiver Education

- Avoid unprotected sexual contact for at least 7 days after completion of therapy by both the index case and his/her partner.
- Counsel client about appropriate use of medications (dose, frequency, importance of compliance, etc.).
- Teach client that condom use may reduce the risk of contracting an STI.
- Teach client about factors in their life that make them more at risk for STIs and how they can modify these factors.
- Discuss and offer HPV and hepatitis B vaccinations - as per the most recent Saskatchewan Immunization Manual.
- Instruct client to abstain from drinking alcohol while taking metroNIDAZOLE and for 24 hours after the last dose because of the Antabuse-like side effects (profuse vomiting) of this drug.

Reporting and Partner Notification

- Case finding and partner notification are critical strategies for maintaining control of STIs in Canada.
- Local public health authorities may assist with partner notification and with appropriate referral for clinical evaluation, testing, treatment, and health education.
- Gonococcal and chlamydial infections are reportable in all provinces and territories; positive test results should be reported to local public health

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- authorities.
- All partners who have had sexual contact with the index case within 90 days prior to symptom onset or date of specimen collection (if the index case is asymptomatic) should be notified, tested, and empirically treated regardless of clinical findings and without waiting for test results.
 - The length of time for the trace-back period should be extended in the following three circumstances:
 1. To include additional time between the date of testing and date of treatment;
 2. If the index case states that there were no partners during the recommended trace-back period, the most recent partner should be notified; and
 3. If all partners traced (according to recommended trace-back period) test negative, the last partner prior to the trace-back period should be notified.
 - If the contact to an index case is not able to come in to be assessed, consider client-delivered partner therapy (e.g., provide medication to the index case to give to their contact/partner). This approach can reduce rates of persistent or recurrent infection in clients with Chlamydia or GC. This treatment approach should be used only when: the contact case cannot be seen in person, the RN has enough knowledge about the contact to prescribe safely (allergies, drug interactions, etc.), and that the index case and contact will comply with this approach.
 - When a neonate is confirmed to have GC, the mother and her most recent sexual partner plus any other partners within 60 days of delivery should be located, clinically evaluated, and empirically treated regardless of clinical findings and without waiting for test results.

Prevention

- Screen at-risk groups
- Case finding and partner notification are critical in controlling infection
- At the time of diagnosis, reviewing, and providing education on prevention practices, the discussion should include:
 - The risk of reinfection

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- Strategies for effective prevention practices
- Prevention of reproductive sequelae
- Individuals with concerns about STIs and/or pregnancy prevention should be provided with information to encourage consistent safe sexual practices
- Identify barriers to prevention practices and the means to overcome them
- Increased acceptance of testing by using non-invasive urine based NAAT testing
- All pregnant women should be screened at the first visit and high-risk pregnant women should be screened before delivery or towards the term to prevent infection in newborn
- To prevent reinfection, partners need to be assessed, tested, treated, and counselled
- Instruct client and their contacts to abstain from intercourse for 7 days from when both the client and partner have finished the single-dose regimen or after completion of the 7-day regimen and are asymptomatic
- Repeat screening of individuals with Chlamydia and GC infection 3 months after treatment or when possible after 3 months

Monitoring and Follow-Up

For Non-gonococcal urethritis

- Follow-up in 7 days when the course of antibiotics is completed to ensure symptom resolution, compliance with medication, no re-exposure, and no new partners.
- Treat current sexual partner(s) and those within the past 60 days even if asymptomatic.

For Chlamydia

- Test of cure for *C. trachomatis* is not routinely indicated if a recommended treatment is taken AND symptoms and signs disappear AND there is no re-exposure to an untreated partner, except the following:
 - Recommended treatment taken but signs and symptoms persist
 - Where compliance is suboptimal
 - If an alternative treatment has been used
 - In all pre-pubertal children

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- In all pregnant women
- Treatment failure has occurred previously
- Infection acquired from a new partner
- PID or disseminated gonococcal infection is diagnosed

If using a urine test (NAAT) for test of cure, wait 3-4 weeks after completion of treatment. However, if the client's symptoms improved but then worsened again, they may have been reinfected and retesting for both Chlamydia and GC is appropriate.

If erythromycin or amoxicillin has been used for treatment of nursing mothers, a test of cure should be done 4 weeks following completion of treatment.

Repeat testing in all individuals is recommended 6 months' post treatment, as re-infection risk is high.

For GC

- Follow-up cultures for test of cure from all positive sites should be done 3-7 days after the completion of therapy, particularly in the following situations:
 - All pharyngeal infections
 - Persistent symptoms or signs post-therapy
 - GC treated with a regimen other than cefTRIAxone, where cefTRIAxone is first line
 - Quinolones were given for treatment in the absence of susceptibility testing for GC
 - Case is linked to another case with documented antimicrobial resistance to the treatment given
 - Antimicrobial resistance to the administered therapy is documented
 - Case is linked to a treatment failure case that was treated with the same antibiotic
 - Treatment failure for GC has occurred previously in the individual
 - Compliance is uncertain
 - There is re-exposure to an untreated partner
 - Infection occurs during pregnancy

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- Disseminated gonococcal infection is diagnosed
- Case is a child
- Follow-up testing should also be considered for PID if *N. gonorrhoeae* was initially isolated
- Women undergoing therapeutic abortion (TA), who have a positive test result for gonococcal infection, as they are at increased risk of developing PID

If urine NAAT is the only choice for test of cure, tests should not be done sooner than 4 weeks after treatment to avoid false-positive results due to the presence of non-viable organisms.

If erythromycin or amoxicillin has been used for treatment of nursing mothers, a test of cure should be done 4 weeks following completion of treatment.

Repeat testing in all individuals is recommended 6 months' post treatment, as reinfection risk is high.

Repeat screening for individuals with a gonococcal infection is recommended 6 months' post treatment.

For trichomoniasis

- Instruct client to abstain from intercourse until client and partner have finished treatment and are asymptomatic.
- Follow-up in 7-10 days after completion of therapy and assess for any presence of symptoms.
- Test for cure is not done routinely but only for those with persistent symptoms.

Referral

Refer to a physician/RN(NP):

- If complication is suspected
- Co-infection with syphilis, for appropriate management
- Newly diagnosed with HIV, hepatitis B, hepatitis C, or syphilis
- Has initial treatment failure
- Recurrent infection

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- Those who cannot tolerate metroNIDAZOLE

DOCUMENTATION

- As per employer policy
- Complete and send appropriate STI reportable form and contact tracing forms to appropriate authority as per employer policy.

REFERENCES

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SASKATCHEWAN REGISTERED NURSES' ASSOCIATION

RNs WITH ADDITIONAL AUTHORIZED PRACTICE
CLINICAL DECISION TOOL
AUGUST 2017

SEXUALLY TRANSMITTED INFECTIONS (STIs)
(CHLAMYDIA, GONORRHEA, TRICHOMONIASIS)
INCLUDING NONGONOCOCCAL URETHRITIS

[treatment.pdf](#)

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