Institut national d'excellence en santé et en services sociaux
Québec

QUEBEC'S NATIONAL MEDICAL PROTOCOL

No. 628001

Unusual vaginal discharge: diagnostic measures and pharmacological treatment

Developed in collaboration with an advisory committee consisting of Québec clinicians from different specialties and areas of expertise.

CLINICAL SITUATION OR TARGET POPULATION

- **Person with unusual vaginal discharge.**
- **Asymptomatic sexual partner:**
  - Asymptomatic individual identified as a sexual partner [1] of a person with a syndrome consistent with a *Chlamydia trachomatis* or *Neisseria gonorrhoeae* infection or of a person who has a laboratory-confirmed *C. trachomatis* or *N. gonorrhoeae* infection.
  - Asymptomatic individual identified as a current sexual partner of a person with a laboratory-confirmed *Trichomonas vaginalis* or *Mycoplasma genitalium* infection.

CONTRAINDICATIONS TO THE APPLICATION OF THIS PROTOCOL

- Person < 14 years of age

INSTRUCTIONS

1. HEALTH STATUS ASSESSMENT

1.1 Signs and symptoms

Look for and describe: vaginal discharge (see Appendix I).

Look for: signs and symptoms of a sexually transmitted and blood-borne infection (STBBI) at all the sites of exposure or of a complicated infection (e.g., lower abdominal pain, deep dyspareunia or a deterioration in overall health with fever).

1.2 Health history[2]

Inquire about the following:

- Current or possible pregnancy;
- Active breastfeeding;
- Presence of an immunocompromised state;
- Date of last menstruation;
- Use of a contraceptive method;
- Types of sexual practices;
- Date and results of last STBBI screening;
- STBBI history;
- History of bacterial vaginosis or vulvovaginal candidiasis (previous number of episodes, confirmed or not by a qualified health professional or by laboratory tests).

Look for:

- STBBI risk factors and assess the indications for STBBI screening. Consult the tool *ITSS à rechercher selon les facteurs de risque décelés*.
- Risk factors for pelvic inflammatory disease (PID):
  - Having undergone a voluntary termination of pregnancy (VTP) or an invasive gynecological procedure (e.g., an endometrial biopsy, a hysteroscopy, a hysterosonography or a hysterosalpingography) in the past month;
  - Intrauterine device (IUD) installed or removed in the past month;
  - *C. trachomatis* or *N. gonorrhoeae* infection in the past year;
  - Previous history of PID.

[1] The partners to be contacted are those who had sexual contact with the affected person during the 60 days preceding the onset of symptoms or specimen collection, while the person had symptoms, or before the completion of a multidose treatment or less than 7 days after a single-dose treatment (in certain situations, a longer period may be warranted).

[2] For a victim of a sexual assault, also follow the recommendations in the *Guide d'intervention médicosociale*.

1.3 Medication history

Look for:

- Contraindications to the use of a recommended treatment;
- Allergy to a recommended treatment;
- Recent antibiotic use (in the past 3 months).

1.4 Physical examination

When possible, a physical examination should be performed. However, a physical examination should always be performed if an STBBI cannot be ruled out following an STBBI risk factor assessment.

Inspection of external genitalia	
Inspect: vulva, urethra and perianal region	**Look for the following:** erythema, edema, fissures, excoriations and ulcerous, vesicular, erosive, pustular or verrucous lesions
Speculum examination	
Inspect: cervix and vaginal walls **Describe:** appearance of the vaginal secretions	**Look for the following:** vaginal discharge, inflammatory appearance of the vaginal walls and cervix, a purulent or mucopurulent endocervical exudate, endocervical bleeding (brittle cervix) or petechiae on the genital mucosa (strawberry cervix).
Bimanual examination	
A bimanual examination is indicated if: • Pre- or postmenstrual spotting or postcoital bleeding; • PID risk factors; • A purulent or mucopurulent endocervical exudate; • Endocervical bleeding upon swabbing (brittle cervix). **Examine:** uterus and adnexal structures	**Look for the following:** lower abdominal tenderness, adnexal tenderness (unilateral or bilateral) or cervical motion tenderness, masses or other structural abnormalities
! **If the person is pregnant:** • It is essential to know where the placenta is before performing a bimanual examination. • If amniotic fluid loss is suspected, a bimanual examination should be avoided.	

2. SPECIMENS AND TESTS[3]

For additional information on the clinical and laboratory criteria, consult Appendix II.

In the presence of:	Do the following:
Vaginal discharge consistent with bacterial vaginosis, vulvovaginal candidiasis or trichomoniasis	• Obtain a sample of the vaginal secretions for a pH measurement and an amine odour test using a potassium hydroxide (KOH) solution, if this is possible at the point of service and if the optimal conditions for doing so are in place **AND/OR** • Obtain a sample of the vaginal secretions for the appropriate microbiological tests[1]
Purulent or mucopurulent endocervical exudate **OR** **Risk factors for a *C. trachomatis* or *N. gonorrhoeae* infection**	• Obtain a vaginal or endocervical specimen to screen for *C. trachomatis* and *N. gonorrhoeae* using a nucleic acid amplification test (NAAT)[2] and an endocervical specimen for an *N. gonorrhoeae* culture
Signs or symptoms of pharyngeal or rectal infection	• Obtain a pharyngeal or rectal specimen, depending on the location of the symptoms, to screen for *C. trachomatis* and *N. gonorrhoeae* by NAAT and a specimen for an *N. gonorrhoeae* culture
Sexual practices indicating pharyngeal or rectal exposure with no signs or symptoms at these sites	• Consult the tool *Prélèvements et analyses recommandés chez une personne asymptomatique*
Risk factors for other STBBIs	• Determine the STBBIs to be screened for in accordance with the tool *ITSS à rechercher selon les facteurs de risque décelés* • Obtain specimens to test for these STBBIs
Persistent or recurrent cervicitis despite appropriate treatment for *C. trachomatis* and *N. gonorrhoeae* infections	• Screen for[1] an *M. genitalium* (in all cases) or *T. vaginalis* (when not done previously) infection
Sexual contact[3] with a person with a syndrome consistent with a *C. trachomatis* or *N. gonorrhoeae* infection or who has a confirmed *C. trachomatis* or *N. gonorrhoeae* infection	• Screen for a *C. trachomatis* or a *N. gonorrhoeae* infection in accordance with the tool *Prélèvements et analyses recommandés chez une personne asymptomatique*
Sexual contact[4] with a person with a confirmed *M. genitalium* or *T. vaginalis* infection	• Screen for[1] an *M. genitalium* or *T. vaginalis* infection (depending on the infection to which the person was exposed)
Possible pregnancy or pre- or postmenstrual spotting or postcoital bleeding	• Do a pregnancy test

1. Consult the list of laboratory tests at the facility.
2. A vaginal self-swab "in a clinical context" or a urine specimen may be considered if a vaginal or endocervical swab cannot be performed. For a self-swab "in a clinical context", a health professional must explain to the person how to obtain the specimen.
3. The partners to be contacted are those who had sexual contact with the affected person during the 60 days preceding the onset of symptoms or specimen collection, while the person had symptoms, or before the completion of a multidose treatment or less than 7 days after a single-dose treatment (in certain situations, a longer period may be warranted).
4. The sexual partners to be contacted are the current ones.

[3] Regardless of type of specimen, consult the laboratory at the facility for details on the tests used locally (e.g., the preferred specimen collection sites, the types of swabs and transport media accepted, the applicable specimen collection, storage and transport conditions).

3. THERAPEUTIC APPROACH

3.1 Vaginal discharge consistent with bacterial vaginosis

Treatment Indications	
Indication 1: **During the initial visit**	Presence of the following three Amsel* criteria: • Homogeneous vaginal discharge with a milky texture; • Vaginal pH > 4.5; • The release of an amine odour on the addition of potassium hydroxide (KOH). * *The presence of clue cells on microscopic examination is also an Amsel criterion.*
Indication 2: **On receipt of the laboratory results**	Clinical manifestations consistent with bacterial vaginosis (consult Appendix I) **AND** Microbiological test result: Nugent score ≥ 7 or other microbiological test result consistent with bacterial vaginosis
Choice of Pharmacological Treatment	
Drug	**Dosage**
Intravaginal clindamycin	1 applicator (5 g) containing 2% cream intravaginally HS x 7 days (RAMQ: exception drug)[1]
Intravaginal metronidazole	1 applicator (5 g) containing 0.75% gel intravaginally HS x 5 days (RAMQ: exception drug)[2]
Oral metronidazole	500 mg PO BID x 7 days
Pregnancy or Breastfeeding	
Pregnancy: The treatment options if the individual is pregnant are the same as if he was not pregnant, except during the first trimester, when metronidazole should be avoided. **Breastfeeding:** Preference should be given to intravaginal treatments (metronidazole is secreted in breast milk).	
Drug Allergy or Intolerance	
Intravaginal clindamycin cream should be preferred in cases of allergy or intolerance to metronidazole. Intravaginal metronidazole gel may be considered in women who are not allergic to metronidazole but who do not tolerate it when taken orally. Conversely, metronidazole should be preferred in those with an allergy or intolerance to clindamycin.	
Other Treatment Option – Anticipated Treatment Adherence Problem	
The following treatment regimen may be considered: metronidazole 2 g PO as a single dose	

1. The recognized indications for payment under the RAMQ's public prescription drug insurance plan are: 1) for the treatment of bacterial vaginosis during the first trimester of pregnancy; 2) when intravaginal metronidazole is ineffective, contraindicated or poorly tolerated.
2. The recognized indications for payment under the RAMQ's public prescription drug insurance plan are: 1) for the treatment of bacterial vaginosis during the second and third trimesters of pregnancy; 2) for the treatment of bacterial vaginosis if the person is intolerant to oral metronidazole.

3.2 Vaginal discharge consistent with vulvovaginal candidiasis

Treatment Indications	
Indication 1: During the initial visit	**History consistent with vulvovaginal candidiasis (based on the medical history and the reported symptoms):** an **empirical treatment** may be prescribed (with no physical examination, pH measurement, amine odour test using a KOH solution or specimen for laboratory tests). However: • If the symptoms worsen or if they persist or reappear after treatment, a physical examination and laboratory tests should be performed before proposing a new treatment. • Depending on the assessment of the person's STBBI risk factors, a physical examination and laboratory tests may be necessary in conjunction with the empirical treatment for vulvovaginal candidiasis if the possibility of a coexisting STBBI cannot be ruled out.
Indication 2: During the initial visit	Clinical manifestations consistent with vulvovaginal candidiasis (consult Appendix I) **AND** Clinical criteria consistent with vulvovaginal candidiasis (consult Appendix II)
Indication 3: On receipt of the laboratory results	Clinical manifestations consistent with vulvovaginal candidiasis (consult Appendix I) **AND** Microbiological test result: yeast present on wet mount or on Gram staining or other microbiological test result consistent with vulvovaginal candidiasis

Choice of Pharmacological Treatment		
Drug	**Dosage[1]**	**External cream as needed for a maximum of 7 days[3]**
Intravaginal clotrimazole	1 applicator (5 g) containing: 1% cream HS x 6 days, 2% cream HS x 3 days, or 10% cream HS as a single dose 1 tablet: 200 mg HS x 3 days, or 500 mg HS as a single dose	1% clotrimazole QD - BID
Intravaginal miconazole	1 applicator (5 g) containing: 2% cream HS x 7 days, or 4% cream HS x 3 days 1 ovule: 100 mg HS x 7 days, 400 mg HS x 3 days, or 1200 mg HS as a single dose	2% miconazole QD - BID
Intravaginal terconazole[2]	1 applicator (5 g) containing: 0.4% cream HS x 7 days	0.4% terconazole QD - BID
Oral fluconazole	150 mg as a single dose	1% clotrimazole or 2% miconazole QD - BID

Pregnancy or Breastfeeding
Pregnancy and breastfeeding: only the intravaginal treatments are recommended. **Pregnancy:** a longer duration of treatment should be preferred (minimum: 7 days). **Breastfeeding:** the recommended durations of treatment if there is no pregnancy can be used.

Drug Allergy
Allergies to azole antifungals are rare. If applicable, consult an experienced colleague.

1. The shorter-duration intravaginal formulations generally cause more skin irritation.
2. This drug is not sold over the counter.
3. Applied locally on the irritated parts of the genitals.

3.3 Vaginal discharge consistent with trichomoniasis or asymptomatic individual identified as a current sexual partner of a person with a laboratory-confirmed *T. vaginalis* infection

Treatment Indications	
Person with a vaginal discharge consistent with trichomoniasis	Clinical manifestations consistent with trichomoniasis (consult Appendix I) **AND** Microbiological test result indicating the presence of *T. vaginalis*
Asymptomatic current sexual partner	The management of the **current** sexual partners of a person with a laboratory-confirmed *T. vaginalis* infection should include, among other things: • A specimen to screen for *T. vaginalis* **AND** • An empirical treatment[1] (before receiving the laboratory test results).

Choice of Pharmacological Treatment		
Clinical Situation	**Drug**	**Dosage**
Person with a vaginal discharge consistent with trichomoniasis	**Metronidazole**	**1st choice:** 500 mg PO BID x 7 days **2nd choice:** 2 g PO as a single dose
Asymptomatic current sexual partner	**Metronidazole**	500 mg PO BID x 7 days **OR** 2 g PO as a single dose

Pregnancy or Breastfeeding
Pregnancy: Because of the risks associated with a *T. vaginalis* infection concerning pregnancy outcomes, pregnant individuals should be treated. Administering metronidazole should be avoided during the first trimester, but since there is no other option, the recommended treatment during all the trimesters of pregnancy is metronidazole 500 mg PO BID x 7 days. **Breastfeeding:** Metronidazole passes into breast milk. Since there is no other option, the recommended treatment during breastfeeding is metronidazole 500 mg PO BID x 7 days. Dividing the total dose into a larger number of daily doses or postponing breastfeeding until after the mother is treated may help decrease the concentration of the drug in breast milk.

Drug Allergy
The oral nitroimidazoles (metronidazole and tinidazole) constitute the only class of antibiotics known to be effective against *T. vaginalis* infection. Individuals who experience an IgE-mediated hypersensitivity reaction to a nitroimidazole should be managed by desensitization to metronidazole in accordance with the published treatment regimens, all this in collaboration with an experienced colleague. The optimal treatment for individuals who cannot be desensitized has not been systematically studied. It is based on case reports, some of which report the use of paromomycin or boric acid.

1. When *T. vaginalis* is tested for by NAAT, one can wait for the laboratory test results before treating if the individual shows the motivation and the possibility of obtaining treatment in the event of a positive result.

3.4 Purulent or mucopurulent endocervical exudate suggestive of cervicitis

Treatment	Purulent or mucopurulent endocervical exudate suggestive of cervicitis
Treatment indication	Initiate pharmacological treatment before obtaining the microbiological test results
Choice of pharmacological treatment and action aimed at partners	Consult the *optimal usage guide on STBBIs – syndromic approach*.

3.5 Positive test result for *C. trachomatis*, *N. gonorrhoeae* or *M. genitalium*

Treatment	Positive test result for *C. trachomatis* or *N. gonorrhoeae*	Positive test result for *M. genitalium*
Treatment indications	Initiate pharmacological treatment.	
Choice of pharmacological treatment and action aimed at partners	Consult the *optimal usage guide on STBBIs – uncomplicated Chlamydia trachomatis or Neisseria gonorrhoeae infection*.	Consult the *optimal usage guide on STBBIs – confirmed Mycoplasma genitalium infection*.

3.6 Asymptomatic individual identified as a sexual partner of 1) a person with a syndrome consistent with a *C. trachomatis* or *N. gonorrhoeae* infection, 2) a person with a laboratory-confirmed *C. trachomatis* or *N. gonorrhoeae* infection or 3) a person with a laboratory-confirmed *M. genitalium* infection

Treatment	Asymptomatic sexual partner of a person with:		
	a syndrome consistent with a *C. trachomatis* or *N. gonorrhoeae* infection[1]	a laboratory-confirmed *C. trachomatis* or *N. gonorrhoeae* infection[1]	a laboratory-confirmed *M. genitalium* infection[2]
Treatment indications	Initiate pharmacological treatment before receiving the asymptomatic sexual partner's microbiological test results.		Initiate pharmacological treatment after receiving a microbiological test result indicating that the asymptomatic sexual partner is positive for *M. genitalium*
Choice of pharmacological treatment	Consult the *decision algorithm for the epidemiological treatment of asymptomatic partners*.		Consult the *optimal usage guide on STBBIs – confirmed Mycoplasma genitalium infection*.

1. The partners to be contacted are those who had sexual contact with the affected person during the 60 days preceding the onset of symptoms or specimen collection, while the person had symptoms, or before the completion of a multidose treatment or less than 7 days after a single-dose treatment (in certain situations, a longer period may be warranted).
2. The sexual partners to be contacted are the current ones.

3.7 Therapeutic approach after receiving the laboratory test results

Laboratory test results	Individual asymptomatic when the laboratory test results are received	Individual symptomatic when the laboratory test results are received
Confirm the empirically treated infection.	Do the follow-up (see Section 5)	Monitor the course of the symptoms and their duration. The expected time to improvement varies according to confirmed infection. If there is no improvement more than 3 days after the start of treatment, the individual's condition should be reevaluated.
Show an infection different from the one treated empirically but that is covered by this protocol.	• If *C. trachomatis*, *N. gonorrhoeae, M. genitalium* or *T. vaginalis*: treat the identified infection. • Result received is consistent with bacterial vaginosis* or vulvovaginal candidiasis: give the person the result but do not propose a new treatment.	Initiate a new treatment targeting the identified infection (if the symptoms are the same as during the initial assessment).
Do not show the empirically treated infection, and no microbiological test for another infection covered by this protocol has been ordered or is positive.	Give the person the result and tell them that their condition will need to be reevaluated if the symptoms reappear.	The person's condition should be reevaluated.
Show an infection covered by this protocol but which has not been treated empirically.	• If *C. trachomatis*, *N. gonorrhoeae, M. genitalium* or *T. vaginalis*: treat the identified infection. • Result received is consistent with bacterial vaginosis* or vulvovaginal candidiasis: give the person the result but do not propose a new treatment.	Initiate a new treatment targeting the identified infection (if the symptoms are the same as during the initial assessment).
Indicate resistance to the antibiotic being administered	Consult an experienced colleague.	
*! **If the person is pregnant:** Always treat bacterial vaginosis, whether the person is symptomatic or not when the results received.		

4. INFORMATION TO BE PROVIDED

- Tell the person that their condition will need to be reevaluated if the symptoms worsen, if they persist beyond 48 to 72 hours after the start of treatment or if they reappear after the end of treatment.
- Many topical and intravaginal agents are oil-based and can therefore reduce the effectiveness of latex condoms and diaphragms and of vaginal spermicides.
- Consult the *optimal usage guide on STBBIs – uncomplicated Chlamydia trachomatis or Neisseria gonorrhoeae infection*, the *optimal usage guide on STBBIs – syndromic approach* or the *optimal usage guide on STBBIs – confirmed Mycoplasma genitalium infection* for the other information to be provided, e.g., that concerning the abstinence period, the notification of partners and the mandatory notification.

5. FOLLOW-UP

- If need be, order a test of cure in accordance with the recommendations in the *optimal usage guide on STBBIs – uncomplicated Chlamydia trachomatis or Neisseria gonorrhoeae infection*.
- For *M. genitalium* and *T. vaginalis* infections, a routine test of cure, if there are no symptoms, is not recommended. If the symptoms persist or recur, repeat the microbiological tests for *M. genitalium* or *T. vaginalis* at least 3 weeks after the end of treatment.
- A test of cure is not recommended in the presence of an unusual vaginal discharge consistent with bacterial vaginosis or vulvovaginal candidiasis.

6. SITUATIONS REQURING SPECIAL ATTENTION, A REASSESSMENT OR FURTHER INVESTIGATION

6.1 At the time of the assessment

- Immunocompromised state
- Pregnancy or breastfeeding
- Symptoms of a complicated infection: lower abdominal pain, deep dyspareunia or a deterioration in overall health with fever
- *De novo* verrucous anogenital lesions consistent with genital warts
- Ulcerous, vesicular, erosive or pustular anogenital lesions
- On bimanual examination (if performed): lower abdominal tenderness, adnexal tenderness (unilateral or bilateral) or cervical motion tenderness, masses or other structural abnormalities
- Signs or symptoms at other sites of exposure
- Four or more episodes of bacterial vaginosis or vulvovaginal candidiasis in the past 12 months (each episode having been evaluated)

6.2 During or after treatment

- Intolerance to the medication
- Persistence of symptoms 48 to 72 hours after the start of treatment

6.3 Upon receiving the microbiological test results

- Result indicating the presence of *N. gonorrhoeae* or *M. genitalium* resistance to the treatment being administered
- Positive screening test result for STBBIs other than a *C. trachomatis*, *N. gonorrhoeae, M. genitalium or T. vaginalis* infection
- Negative test result for the suspected infection for which treatment has been initiated in a person who is still symptomatic when the results are received.
- Positive test result for *C. trachomatis* or *N. gonorrhoeae* at other sites of exposure in a person who has been treated pharmacologically for a syndrome consistent with cervicitis
- Positive test result for *C. trachomatis* with a lymphogranuloma venereum (LGV) genotype
- Microbiological test result consistent with bacterial vaginosis or with an *M. genitalium* infection in a pregnant person.
- Positive result on the test of cure.

REFERENCES

This protocol is based on the latest scientific data and best practice recommendations, which were supplemented with contextual information and with the perspectives of clinicians from different specialties and areas of expertise. For details on the development process for this national medical protocol and to consult the references, refer to the INESSS report accompanying this clinical tool.

APPENDIX I – COMPARATIVE TABLE OF CLINICAL MANIFESTATIONS CONSISTENT WITH CERVICITIS, BACTERIAL VAGINOSIS, VULVOVAGINAL CANDIDIASIS OR TRICHOMONIASIS

CLINICAL MANIFESTATIONS[1]	*C. TRACHOMATIS* OR *N. GONORRHOEAE* CERVICITIS	BACTERIAL VAGINOSIS	VULVOVAGINAL CANDIDIASIS[2]	TRICHOMONIASIS
Vaginal discharge	Purulent	Adherent, homogeneous, fluid Whitish to greyish	Thick, curd-like Whitish to yellowish	Frothy appearance Yellowish to greenish
Odour	Nonspecific	Malodorous: fishy smell	Nonspecific	Malodorous
Itching	None	None or slight	Moderate to severe	Moderate to severe
Other	Purulent or mucopurulent endocervical exudate Pre- or postmenstrual spotting, postcoital bleeding Endocervical bleeding upon swabbing (brittle cervical epithelium)	Not applicable	Erythema, edema, fissures, excoriations Associated symptoms (pain, superficial dyspareunia, external dysuria)	Petechiae on the genital epithelium (strawberry cervix) Superficial dyspareunia, dysuria

1. Not all of the clinical manifestations listed for a given infection will necessarily be present.
2. Predisposing factor: recent antibiotic use.

APPENDIX II – COMPARATIVE TABLE OF CLINICAL AND LABORATORY CRITERIA CONSISTENT WITH CERVICITIS, BACTERIAL VAGINOSIS, VULVOVAGINAL CANDIDIASIS OR TRICHOMONASIS

CRITERIA	*C. TRACHOMATIS* OR *N. GONORRHOEAE* CERVICITIS	BACTERIAL VAGINOSIS	VULVOVAGINAL CANDIDIASIS[1]	TRICHOMONIASIS
Clinical criterion				
Vaginal pH	Not applicable	Vaginal pH > 4.5	Vaginal pH ≤ 4.5	Vaginal pH > 4.5
Amine odour (with KOH)	Not applicable	Yes	No	No
Laboratory criterion				
Result	Presence of: *C. trachomatis* and/or *N. gonorrhoeae*	Nugent score ≥ 7 (vaginal flora consistent with bacterial vaginosis) **OR** Other microbiological test result consistent with bacterial vaginosis	Yeast present on wet mount or Gram staining **OR** Other microbiological test result consistent with vulvovaginal candidiasis	Presence of: *T. vaginalis*

1. Predisposing factor: recent antibiotic use.

APPENDIX III – ADDITIONAL INFORMATION ON PHARMACOLOGICAL TREATMENTS

The additional information on pharmacological treatments below is not exhaustive.

Amoxicillin

Contraindications:

- History of allergic reaction to a penicillin (e.g., penicillin G or V, ampicillin, amoxicillin, cloxacillin or piperacillin)

Precautions:

- None

Adverse effects:

- Gastrointestinal effects: diarrhea, nausea, vomiting

Drug interactions:

- Allopurinol
- Methotrexate administered at a chemotherapeutic dose

Azithromycin

Contraindications:

- History of allergic reaction to a macrolide (e.g., azithromycin, clarithromycin or erythromycin)
- History of cholestatic jaundice or hepatic dysfunction associated with prior azithromycin use

Precautions:

- Severe liver failure
- Severe renal failure (creatinine clearance < 10 mL/min)
- Myasthenia gravis
- Congenital or acquired QT interval prolongation

Adverse effects:

- Gastrointestinal effects: diarrhea, abdominal pain, nausea, vomiting

Drug interactions:

- QT interval-prolonging drugs (e.g., amiodarone, citalopram, domperidone, haloperidol and sotalol)
- Drugs that are P-glycoprotein/ABCB1 substrates (e.g., colchicine, digoxin, dabigatran and edoxaban)

Cephalosporins: Cefixime and Ceftriaxone

Contraindications:

- History of allergic reaction to a cephalosporin

Precautions:

- History of allergic reaction to a penicillin (e.g., penicillin G or V, ampicillin, amoxicillin, cloxacillin or piperacillin)

Adverse effects:

- Gastrointestinal effects: diarrhea, nausea
- Injection site discomfort (ceftriaxone)

Drug interactions:

- No significant interactions (single dose)

Preferred diluent for ceftriaxone:

- 1% epinephrine-free lidocaine (use 1% epinephrine-free lidocaine only if there is no history of allergic reaction to lidocaine or to another local anesthetic)

Clindamycin (vaginal cream)

Contraindications:

- History of allergic reaction to clindamycin
- History of inflammatory bowel disease or colitis associated with antibiotic use

Precautions:

- The effectiveness of certain contraceptive methods (latex condom, latex diaphragm and cervical cap, and spermicide) may be compromised during treatment.

Adverse effects:

- Skin irritation

Drug interactions:

- No significant interactions

Clotrimazole – Miconazole – Terconazole

Contraindications:

- History of allergic reaction to a topical azole antifungal

Precautions:

- The effectiveness of certain contraceptive methods (latex condom, latex diaphragm and cervical cap, and spermicide) may be compromised during treatment.

Adverse effects:

- Burning sensation
- Skin irritation (the shorter-duration formulations cause more skin irritation)

Drug interactions:

- No significant interactions

Doxycycline

Contraindications:

- History of allergic reaction to a tetracycline (e.g., doxycycline, minocycline, tetracycline or tigecycline)
- Pregnancy or breastfeeding
- Myasthenia gravis

Precautions:

- Esophageal abnormality (e.g., stenose or achalasia)

Adverse effects:

- Photosensitivity
- Gastrointestinal effets: diarrhea, abdominal pain, nausea, vomiting
- Esophageal irritation

Drug interactions:

- Antacids (aluminum, calcium and magnesium), bismuth subsalicylate, multivitamins, iron
- Anticonvulsants (e.g., barbiturates, carbamazepine and phenytoin)
- The class of retinoids (e.g., acitretin and isotretinoin)

Fluconazole

Contraindications:

- History of allergic reaction to fluconazole or to another azole antifungal

Precautions:

- Pregnancy or breastfeeding
- Congenital or acquired QT interval prolongation
- Severe liver faillure

Adverse effects:

- Nausea
- Abdominal pain
- Headache

Drug interactions:

- No significant interactions (single dose)

Single-dose gentamicin

Contraindications:

- History of allergic reaction to an aminoglycoside (e.g., amikacin, gentamicin, streptomycin or tobramycin)

Precautions:

- Pregnancy
- Since the maximum volume for intramuscular injection is 3 ml per injection, gentamicin should not be diluted with 1% epinephrine-free lidocaine.

Adverse effects:

- Injection site discomfort

Drug interactions:

- No significant interactions (single dose)

Metronidazole

Contraindications:

- History of allergic reaction to metronidazole

Precautions:

- Pregnancy (should be avoided especially during the first trimester) or breastfeeding
- Blood dyscrasias
- Severe liver failure
- Serious progressive or chronic diseases of the central nervous system

Avoid consuming alcohol during treatment and for at least 24 hours after the end of treatment (disulfiram effect): metronidazole PO or gel

Adverse effects:

- Nausea
- Metalic taste
- Dizziness
- Headache
- Dark urine
- Diarrhea

Metronidazole (Cont'd)

Drug interactions:

- Anticonvulsivants (e.g., phenobarbital and phenytoin)
- Vitamin K antagonists (e.g., warfarin): *a warfarin dose decrease may be considered as soon as treatment with metronidazole is initiated, **AND** it is recommended that the INR be checked 4 or 5 days after starting treatment with metronidazole and 4 to 5 days after stopping it (consult the Québec national medial protocol on warfarin adjustment)*

** Serum metronidazole concentrations after the administration of the intravaginal gel are low. The characteristics listed here therefore mainly concern the oral form.*

Moxifloxacin

Contraindications:

- History of allergic reaction to a fluoroquinolone
- History of severe adverse reaction to a quinolone (e.g., tendon disorder, peripheral neuropathy or central nervous system disorder)

Precautions:

- Pregnancy or breastfeeding
- History of myasthenia gravis
- History of *Clostridium difficile* disease
- Severe liver failure
- Epidemiological studies report an increased risk of aortic aneurysm and dissection after fluoroquinolone use (risk higher, for example, in the elderly and in individuals with a preexisting diagnosis of aortic aneurysm and/or aortic dissection and in individuals with hypertension or known atherosclerosis): anyone who experiences sudden, severe abdominal, chest or back pain during or after treatment with a fluoroquinolone should obtain medical care as soon as possible
- Congenital or acquired QT interval prolongation
- Risk of tendon disorder or tendon rupture (risk higher, for example, in persons over 60 years of age or who are taking corticosteroids or who have had a kidney, heart or lung transplant)
- Confirmed or suspected central nervous system disorder that predisposes to seizures or that is likely to lower the epileptogenic threshold
- Visual problems: anyone who reports visual problems during or after treatment with a fluoroquinolone should obtain medical care as soon as possible, since this complication is considered a medical emergency

Adverse effects:

- Joint pain
- Gastrointestinal effects: diarrhea, nausea, vomiting
- Muscle pain
- Peripheral neuropathy
- Photosensitivity
- Central nervous system-related problems: headache, dizziness, vertigo, confusion, seizures, psychosis, hallucinations
- Tendon disorder and tendon rupture

Drug interactions:

- Antacids, sucralfate, metal cations and multivitamins: moxifloxacin should be taken at least 4 hours before or 8 hours after these agents
- Vitamin K antagonists (e.g., warfarin): *it is recommended that the INR be checked 4 or 5 days after starting treatment with moxifloxacin and 4 to 5 days after stopping it (consult the Québec national medical protocol on warfarin adjustment)*