



Learn simply

Lower Genital Tract Infection

Lower genital tract infection¹

- Identify risk factors for lower genital tract infection²
- Understand the risks to the mother³ and to the fetus⁴

Is the woman currently symptomatic?⁵

No

Yes

Screen for chlamydia and gonorrhea⁶

Confirm the diagnosis⁹

Negative

Positive

Diagnosis confirmed

Diagnosis not confirmed

- Discuss prevention of sexually transmitted infections (STIs)⁷
- Consider repeat screening in the 3rd trimester in high-risk pregnancies

- **Treat patient⁸**
- Screen and treat sexual partner(s) or refer
- Report to Department of Public Health, if required by law
- Screen for other STIs (HIV, syphilis)

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- If symptoms persist, consider alternative diagnoses¹⁰
- Discuss STI prevention⁷

Continue routine prenatal care

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Repeat testing 2–3 weeks after treatment ("test of cure")

Negative

Positive

- Consider repeat screening in the 3rd trimester
- No place for antibiotic suppression

- Consider non-compliance, failed treatment (resistance, poor antibiotic selection), reinfection

Repeat antibiotic treatment
Check partner if appropriate

Prevent vertical transmission

- Topical treatment to all neonates at delivery¹¹

1. Lower genital tract infections include:
 - (i) bacterial vaginosis (BV), which refers to an overgrowth of commensal vaginal organisms, including *Bacteroides*, *Peptostreptococcus*, *Gardnerella vaginalis*, *Mycoplasma hominis*, and *Enterobacteriaceae* with a decrease in *Lactobacillus* species. It is not a sexually transmitted infection (STI);
 - (ii) *Trichomonas*, a predominantly (but not exclusively) STI caused by *Trichomonas vaginalis*;
 - (iii) Gonorrhea, an STI caused by *Neisseria gonorrhoea*; and
 - (iv) Chlamydia, the most common STI in the United States, caused by the obligate intracellular parasite, *Chlamydia trachomatis*.
2. Risk factors for lower genital tract infections include multiple sexual partners, unprotected intercourse, other sexually transmitted infections, drug abuse, diabetes, unmarried status, age <20 years, a "high-risk" partner, and late/no prenatal care.
3. Lower genital tract infections are associated with an increased risk of preterm birth, especially if they are symptomatic. However, it is not clear that treatment abrogates this risk. As such, routine screening for lower genital tract infections is not generally recommended in either low- or high-risk pregnancies.
4. Aside from the risk of preterm birth, lower genital tract infections pose little risk to the fetus while in utero. They do not generally cause ascending intraamniotic infection. If exposed at delivery, however, such infections (chlamydia, gonorrhea) can cause conjunctivitis and neonatal pneumonia.



1. Most women with lower genital tract infections are asymptomatic (especially chlamydia, gonorrhea, and BV). However, they may present with vulvar itching (pruritis), pain, or burning that may be worse after menses or intercourse (due to a change in vaginal pH).
2. A vaginal discharge and symptoms of dysuria may also be present. Gonorrhea can present with anal or pharyngeal discomfort. Systemic symptoms (low-grade fever, malaise, fatigue, nausea, abdominal pain) are rare, and should prompt a search for alternative causes. The exception is disseminated gonococcal infection, which can present with fever, chills, small pustular skin lesions, and arthritis of the knees, wrists, and ankles.
3. Because chlamydia and gonorrhea are common, often asymptomatic, and can infect the fetus as it passes through the birth canal, all pregnant women should be screened for these two infections at their first prenatal visit. High-risk women should be screened again in the third trimester.
4. A variety of screening tests are available, including
 - (i) polymerase chain reaction (PCR)-based tests;
 - (ii) antigen detection methods (such as enzyme-linked immunosorbant assay (ELISA) or fluorescein-conjugated antibody test);
 - (iii) cytologic staining; or
 - (iv) culture-based protocols using selective culture media. ELISA is most commonly used in low-risk populations.



1. Routine screening for BV and trichomonas is not recommended.
2. Prevention of STIs includes avoidance of unprotected intercourse, routine use of barrier contraception, and stopping drug abuse.
3. Specific treatment depends on the infection:
 - (i) for BV, clindamycin 2% cream vaginally qhs x 7 days in early pregnancy and metronidazole 500 mg po bid or clindamycin 900 mg po bid x 7 days in the latter half of pregnancy (antibiotic therapy is generally deferred if the woman is asymptomatic);
 - (ii) for trichomonas, metronidazole 375-500 mg po bid x 7 days (alternative treatment includes metronidazole 2 g po x 1 dose or vaginal metronidazole/clotrimazole, but failure rate is higher);
 - (iii) for gonorrhea, cefuroxime 400 mg po x 1 or ceftriaxone 125 mg IM x 1 dose (if penicillin-allergic, use spectinomycin 2 g IM x 1 dose; quinolones are contraindicated in pregnancy; consider treating also for presumed chlamydia infection);
 - (iv) for chlamydia, amoxicillin 500 mg po tid x 7 days, erythromycin 500 mg po qid x 7 days, or azithromycin 1 g po x 1 dose (topical treatment is inadequate).



1. Abdominal exam is typically benign. Speculum exam may reveal cervical erythema (a red, inflamed “strawberry” cervix is suggestive of chlamydia) and/or a cervicovaginal discharge ranging from thin malodorous (BV) to mucopurulent (gonorrhea, chlamydia) to foamy yellow-green with a foul “fishy” odor (trichomonas). Laboratory testing is required to confirm gonorrhea or chlamydia infection. Confirmation of trichomonas infection requires a wet smear of cervicovaginal discharge showing motile, flagellated, pear-shaped organisms. BV is a clinical diagnosis requiring at least two of the following criteria: wet mount positive for clue cells, decrease in lactobacilli, a positive “whiff test” (fishy odor) on mixture with potassium hydroxide, and vaginal pH >4.5.
2. Alternative diagnoses include urinary tract infection, ruptured membranes, foreign body, non-specific cervicitis, herpes, and candidal (yeast) infection.
3. All infants should receive erythromycin ointment applied to their eyes within 1 hour of birth to prevent conjunctivitis from chlamydia or gonorrhea.

