### BACTERIAL VAGINOSIS (BV)

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<th>DEFINITION</th>
<th>Bacterial vaginosis (BV) is the most common cause of vaginal discharge in reproductive age women. BV is a polymicrobial clinical syndrome in which the normal vaginal flora (e.g., <em>Lactobacillus</em> sp.) are largely replaced with high concentrations of anaerobic bacteria (e.g. <em>Prevotella</em> sp., <em>Mobiluncus</em> sp., <em>G. vaginalis</em>, <em>Ureaplasma</em>, <em>Atopobium vaginae</em> and <em>Mycoplasma</em>) that cause a biofilm to form over the vaginal epithelium. Clinically, the diagnosis is made using Amsel’s criteria (see below). Most women with BV are asymptomatic. Outside of pregnancy, only symptomatic women need to be treated; in pregnancy, the only asymptomatic women who need to be treated are those with history of premature delivery. Risk factors for BV include multiple sex partners (male or female), new sex partners, women who have sex with women, receptive oral-genital sex, douching, lack of condom use, frequent spotting or bleeding and smoking. Treatment of sex partners does not reduce rates of reinfection. At least 30% of women with BV will have recurrent BV within a month.</th>
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<td>SUBJECTIVE</td>
<td>May include: 1. Copious amounts of vaginal discharge, which often has a “fishy” odor. 2. Introital dyspareunia or vulvar irritation. 3. For pregnant women only: history of prior preterm delivery</td>
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<td>OBJECTIVE</td>
<td>Must include: Pelvic examination. May include: Homogeneous, thin, white discharge that smoothly coats vaginal walls.</td>
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<td>LABORATORY</td>
<td>1. For Point of Care testing, use one of the following tests:  a. Amsel’s diagnostic criteria require that at least 3 of the following 4 symptoms or signs be present:  1) Homogeneous, thin, white discharge that smoothly coats the vaginal walls. 2) Clue cells on microscopic exam of vaginal specimen suspended in normal saline. 3) pH of vaginal fluid &gt;4.5. 4) A fishy odor of vaginal discharge before or after addition of 10% KOH (the whiff test).  b. DNA probe based tests (Affirm VP III).  c. OSOM BVBLUE® test. 2. For research or for complicated cases, Gram stain test can be used to determine relative concentration of lactobacilli, Gram-negative and Gram-variable rods and cocci, and curved gram-negative rods. 3. Tests that are not recommended include:  a. Test cards for pH and trimethylamine.  b. Culture of <em>G. vaginalis</em>.  c. Cervical cytology tests.  d. Proline aminopeptidase test card (Pip Activity TestCard).</td>
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<td>NOTES:</td>
<td>1. Only 30% of patients with BV have leukocytosis; therefore, increased numbers of WBCs on microscopic evaluation of vaginal discharge may suggest an infection of the cervix or vagina, which requires further evaluation. 2. Routine screening for BV is not recommended for any subgroups.</td>
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<td>ASSESSMENT</td>
<td>Bacterial vaginosis (BV).</td>
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| PLAN | 1. CDC STD Treatment Guidelines 2015 state that “All women with BV should be tested for HIV and other STDs.” 2. Treatment is recommended for nonpregnant women with symptoms.  a. Recommended regimens. Select one of the following:  1) Metronidazole* 500 mg orally twice a day for 7 days. 2) Metronidazole* gel (MetroGel Vaginal) 0.75%, 1 applicator (5g) intravaginally nightly for
b. Alternative therapies. Select one of the following:
1) Tinidazole *† 2 g orally daily for 2 days.
2) Tinidazole *† 1 g orally daily for 5 days.
3) Clindamycin‡ 300 mg orally twice a day for 7 days.
4) Clindamycin‡ ovules 100 mg intravaginally once at bedtime for 3 days.

* Breastfeeding women should withhold breast milk from infant during treatment and for 24 hours after last dose of oral metronidazole or 72 hours after last dose of tinidazole. Advise woman to pump and discard breast milk until it is safe to restart breast feeding.

* Delay initiation of metronidazole and tinidazole until all alcohol in patient’s system has been metabolized and warn patient not to consume any alcohol during treatment and for 24 hours after last dose of metronidazole or 72 hours after last dose of tinidazole.

* These medications should not be used by people with allergy to or intolerance of metronidazole.

† Safety in pregnancy has not been established.

‡ Clindamycin is compatible with breastfeeding. It should be used with caution in women with history of GI problems, especially colitis. Clindamycin creams may weaken latex condoms or diaphragms.

3. Treatment options for symptomatic pregnant women and asymptomatic pregnant women with previous preterm birth. Select one of the following:
   a. Metronidazole* 500 mg orally twice a day for 7 days.
   b. Metronidazole* 250 mg orally three times a day for 7 days.
   c. Clindamycin† 300 mg orally twice a day for 7 days.

* Delay initiation of metronidazole and tinidazole until all alcohol in patient’s system has been metabolized and warn patient not to consume any alcohol during treatment and for 24 hours after last dose of metronidazole or 72 hours after last dose of tinidazole.

* Should not be used by people with allergy to or intolerance of metronidazole.

‡ Clindamycin should be used with caution in women with history of GI problems, especially colitis. Vaginal treatment with clindamycin may weaken latex condoms or diaphragms.

4. If symptoms (odor) bother women greatly, irrigation of the vagina with saline in non-pregnant women may reduce short term symptoms, but antibiotic therapy is still needed for longer term results. In-office irrigation may be substituted for one time home saline douche, unless vaginal treatments are to be used.

5. For patients with persistent symptoms despite 7-day therapy, re-confirm diagnosis of BV and treat with second course of appropriate antibiotics for 10-14 days.

6. For nonpregnant women who have recurrent infections, treat latest outbreak and then consider suppression. Rule out risk factors (douching, oral-genital contact, rectal-vaginal contact). CDC Recommendations include:
   a. Initial therapy can be with one of the following:
      1) Metronidazole 500 mg orally twice a day for 7 days*.
      2) Tinidazole 500 mg orally twice daily for 7 days.
   b. Follow-up suppressive therapy for 6 months with one of the following:
      1) Metronidazole gel* 0.75% intravaginally, twice weekly at night.
      2) Boric acid 600 mg vaginal suppository (gel cap) nightly for 21 days followed by metronidazole gel* 0.75% intravaginally twice weekly for 6 months.
   c. Note: Other approaches have been recommended to treat recurrent BV infections and to provide ongoing suppression. One such approach would include the following:
      1) Metronidazole gel* 0.75% intravaginally nightly for 10 days and AND
      2) Doxycycline 100 mg, 1 tablet orally twice a day for 10 days (not for use in pregnancy) AND
      3) Condoms without spermicide for 30 days.
### PLAN (Continued)

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| 4) | Consider use of vaginal contraceptive ring for further suppression if patient does not have US MEC category 3-4 condition for estrogen-containing contraception.  
  * Breastfeeding women should withhold breast milk from infant during treatment and for 24 hours after last dose of oral metronidazole or 72 hours after last dose of tinidazole. Advise woman to pump and discard breastmilk until it is safe to restart breast feeding.  
  * Delay initiation of metronidazole and tinidazole until all alcohol in patient’s system has been metabolized and warn patient not to consume any alcohol during treatment and for 24 hours after last dose of metronidazole or 72 hours after last dose of tinidazole.  
  * These medications should not be used by people with allergy to or intolerance of metronidazole.  
  5) Before initiating long term or high dose therapies with metronidazole, confirm by history no liver problems. If any questions persist, confirm by testing liver function. |
| 7. | Treatment of sex partners is not beneficial in preventing the recurrence of BV. |

### PATIENT EDUCATION

1. Stress importance of completing medications.  
2. Advise patient not to interrupt treatment during menses.  
3. Counsel on importance of perineal hygiene.  
4. Advise patient not to use tampons during treatment with vaginal creams.  
5. Advise patient of pertinent information regarding antibiotic use:  
   a. Metronidazole or tinidazole.  
      1) Avoid alcohol while taking these medications and for 24 hours after taking metronidazole and for 72 hours after taking tinidazole, because drug might cause severe nausea and vomiting (Antabuse reaction).  
      2) Treatment may cause metallic taste in mouth.  
      3) Treatment may cause seizures, peripheral neuropathy (numbness and tingling on hands and feet) or liver damage. Patient should discontinue medication and seek emergency medical care if any of these symptoms develop.  
      4) Medications should be taken with food.  
   b. Clindamycin.  
      1) May cause mild nausea or abdominal upset.  
      2) Rarely may cause severe diarrhea (pseudomembranous colitis). Instruct patient to stop clindamycin immediately if diarrhea occurs, to avoid all antidiarrheal medications and to seek immediate medical care.  
      3) Advise that clindamycin vaginal products have petroleum and may weaken latex barrier contraceptives. Recommend use of non-latex condoms or alternative method of birth control during therapy and 5-7 days following completion of treatment.  
6. If patient asks, tell patient that probiotic treatments are not as effective as the antibiotic therapies provided her. However, there is some evidence that eating yogurt daily or douching with yogurt once a week may reduce recurrence rates. There are probiotic products with lactobacillus for sale; some are contaminated with other organisms, but some have been shown to help reduce recurrences. Lactic acid-producing strains of lactobacillus may be more effective than those producing hydrogen peroxide; *L. crispatus* and *L. jensenii* are most commonly associated with a healthy vagina. A lactic acid liquid soap with lactoserum used after metronidazole cure has been shown to reduce BV recurrences. Tell patients not to use any of these products if they are pregnant or immunocompromised.  
7. Explain that BV recurrence rates are relatively high and that she should return if symptoms return.  
8. Advise against smoking and douching.  
9. Encourage latex or non-latex condom use (as indicated) for at least 14 days. Advise that hormonal contraceptives (especially vaginal ring) or consistent condom use may reduce risk of recurrence. |

### REFER to MD

1. Resistant symptomatic infections.  
2. Frequently recurring infections for suppressive therapy.  
3. Suspected BV in absence of microscopic confirmation.  
4. Women with history of chronic renal disease or hepatic disease who desire to use oral metronidazole.
or have other contraindications to preferred treatment modalities.

5. Women with allergies to metronidazole who cannot use other products.

REFERENCES