


**Vaginitis**

- Trichomoniasis
- Vulvovaginal Candidiasis (VVC)
- Bacterial Vaginosis (BV)



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Vaginitis Curriculum

**Vaginal Environment**

- The vagina is a dynamic ecosystem that contains approximately  $10^9$  bacterial colony-forming units.
- Normal vaginal discharge is clear to white, odorless, and of high viscosity.
- Normal bacterial flora is dominated by lactobacilli – other potential pathogens present.
- Acidic environment (pH 3.8-4.2) inhibits the overgrowth of bacteria
- Some lactobacilli also produce  $H_2O_2$ , a potential microbicide

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Vaginitis Curriculum

**Vaginitis**

- Usually characterized by:
  - Vaginal discharge
  - Vulvar itching
  - Irritation
  - Odor
- Common types
  - Trichomoniasis (15%-20%)
  - Bacterial vaginosis (40%-45%)
  - Vulvovaginal candidiasis (20%-25%)

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Vaginitis Curriculum

### Other Causes of Vaginitis

- Mucopurulent cervicitis
- Herpes simplex virus
- Atrophic vaginitis
- Allergic reactions
- Vulvar vestibulitis
- Foreign bodies

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Vaginitis Curriculum

### Diagnosis of Vaginitis

- Patient history
- Visual inspection of internal/external genitalia
- Appearance of discharge
- Collection of specimen
- Preparation and examination of specimen slide

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Vaginitis Curriculum

### Other Diagnostics for Vaginitis

- DNA probes
- Cultures
- Fem Examine Test Card™
- PIP Activity Test Card™

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Vaginitis Curriculum

### Wet Preps: Common Characteristics

Saline: 40X objective

Source: Seattle STD/HIV Prevention Training Center at the University of Washington

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Vaginitis Curriculum

### Wet Prep: Lactobacilli and Epithelial Cells

Saline: 40X objective

Source: Seattle STD/HIV Prevention Training Center at the University of Washington

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Vaginitis Curriculum

### Vaginitis Differentiation

	Normal	Trichomoniasis	Candidiasis	Bacterial Vaginosis
<b>Symptom presentation</b>		Itch, discharge, 50% asymptomatic	Itch, discomfort, dysuria, thick discharge	Odor, discharge, itch
<b>Vaginal discharge</b>	Clear to white	Frothy, gray or yellow-green, malodorous	Thick, clumpy, white "cottage cheese"	Homogenous, adherent, thin, milky white; malodorous "foul fishy"
<b>Clinical findings</b>		Cervical petechiae "strawberry cervix"	Inflammation and erythema	
<b>Vaginal pH</b>	3.8 - 4.2	> 4.5	Usually $\leq$ 4.5	> 4.5
<b>KOH "whiff" test</b>	Negative	Often positive	Negative	Positive
<b>NaCl wet mount</b>	Lacto-bacilli	Motile flagellated protozoa, many WBCs	Few WBCs	Clue cells ( $\geq$ 20%), no few WBCs
<b>KOH wet mount</b>			Pseudohyphae or spores if non-albicans species	

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Trichomoniasis Curriculum

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## Vaginitis

*Trichomonas vaginalis*



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Trichomoniasis Curriculum

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## Learning Objectives

Upon completion of this content, the learner will be able to:

1. Describe the epidemiology of trichomoniasis in the U.S.
2. Describe the pathogenesis of *T. vaginalis*.
3. Describe the clinical manifestations of trichomoniasis.
4. Identify common methods used in the diagnosis of trichomoniasis.
5. List CDC-recommended treatment regimens for trichomoniasis.
6. Describe patient follow up and partner management for trichomoniasis.
7. Describe appropriate prevention counseling messages for patients with trichomoniasis.

11

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Trichomoniasis Curriculum

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## Lessons

- I. Epidemiology: Disease in the U.S.
- II. Pathogenesis
- III. Clinical manifestations
- IV. Diagnosis
- V. Patient management
- VI. Prevention

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Trichomoniasis Curriculum

## Lesson I: Epidemiology: Disease in the U.S.

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Trichomoniasis Curriculum Epidemiology

## Incidence and Prevalence

- Most common treatable STD
- Estimated 7.4 million cases annually in the U.S. at a medical cost of \$375 million
- Estimated prevalence:
  - 2%-3% in the general female population
  - 50%-60% in female prison inmates and commercial sex workers
  - 18%-50% in females with vaginal complaints

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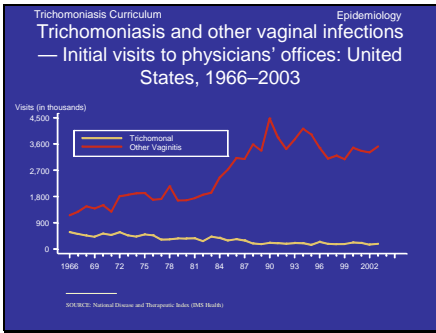
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Trichomoniasis Curriculum Epidemiology

### Risk Factors

- Multiple sexual partners
- Lower socioeconomic status
- History of STDs
- Lack of condom use

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Trichomoniasis Curriculum Epidemiology

### Transmission

- Almost always sexually transmitted
- *T. vaginalis* may persist for months to years in epithelial crypts and periglandular areas
- Transmission between female sex partners has been documented

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Trichomoniasis Curriculum

### Lesson II: Pathogenesis

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Trichomoniasis Curriculum Pathogenesis

### Microbiology

- Etiologic agent
  - *Trichomonas vaginalis* - flagellated anaerobic protozoa
  - Only protozoan that infects the genital tract
- Possible association with
  - Pre-term rupture of membranes and pre-term delivery
  - Increased risk of HIV acquisition

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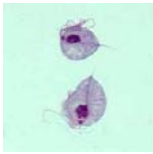
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Trichomoniasis Curriculum Pathogenesis

### *Trichomonas vaginalis*



Source: CDC, National Center for Infectious Diseases, Division of Parasitic Diseases

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Trichomoniasis Curriculum

### Lesson III: Clinical Manifestations

21

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Trichomoniasis Curriculum Clinical Manifestations

### Clinical Presentation and Symptoms in Women

- May be asymptomatic in women
- Vaginitis
  - Frothy gray or yellow-green vaginal discharge
  - Pruritus
  - Cervical petechiae ("strawberry cervix") - classic presentation, occurs in minority of cases
- May also infect Skene's glands and urethra, where the organisms may not be susceptible to topical therapy

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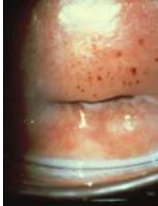
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Trichomoniasis Curriculum Clinical Manifestations

### "Strawberry cervix" due to *T. vaginalis*



Source: Claire E. Stevens/Seattle STD/HIV Prevention Training Center at the University of Washington

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Trichomoniasis Curriculum Clinical Manifestations

### *T. vaginalis* in Men

- May cause up to 11%-13% of nongonococcal urethritis in males
- Urethral trichomoniasis has been associated with increased shedding of HIV in HIV-infected men
- Frequently asymptomatic

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Trichomoniasis Curriculum

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## Lesson IV: Diagnosis

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Trichomoniasis Curriculum

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Diagnosis

## Diagnosis

- **Motile** trichomonads seen on saline wet mount
- Vaginal pH >4.5 often present
- Positive amine test
- Culture is the "gold standard"

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Trichomoniasis Curriculum

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Diagnosis

## Diagnosis (continued)

- Pap smear has limited sensitivity and low specificity
- DNA probes
- Male diagnosis - Culture
  - First void urine concentrated
  - Urethral swab

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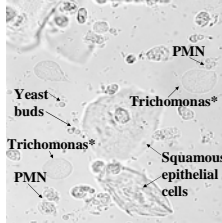
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Trichomoniasis Curriculum Diagnosis

## Wet Prep: Trichomoniasis

Saline: 40X objective



The image shows a wet prep of vaginal secretions. Labels point to: PMN (polymorphonuclear leukocyte), Trichomonas\* (flagellated protozoan), Yeast buds (small, round structures), and Squamous epithelial cells (large, flat cells). A note at the bottom states: '\*Trichomonas shown for size reference only; must be motile for identification. Source: Seattle STD/HIV Prevention Training Center at the University of Washington'.

28

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Trichomoniasis Curriculum

## Lesson V: Patient Management

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Trichomoniasis Curriculum Management

## Treatment

- CDC-recommended regimen
  - Metronidazole 2 g orally in a single dose
- CDC-recommended alternative regimen
  - Metronidazole 500 mg twice a day for 7 days
- No follow-up necessary

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Trichomoniasis Curriculum Management

### Pregnancy

- CDC-recommended regimen
  - Metronidazole 2 g orally in a single dose
- No evidence of teratogenicity

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Trichomoniasis Curriculum Management

### Treatment Failure

- If treatment failure occurs after 1 treatment attempt with both regimens, the patient should be retreated with metronidazole 2 g orally once a day for 3-5 days
- Assure treatment of sex partners
- If repeated treatment failures occur, contact the Division of STD Prevention, CDC, for metronidazole-susceptibility testing
  - 404-639-8363
  - [www.cdc.gov/std](http://www.cdc.gov/std)

32

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Trichomoniasis Curriculum

### Lesson VI: Prevention

33

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Trichomoniasis Curriculum Prevention

### Partner Management

- Sex partners should be treated
- Patients should be instructed to avoid sex until they and their sex partners are cured (when therapy has been completed and patient and partner(s) are asymptomatic)

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Trichomoniasis Curriculum Prevention

### Patient Counseling and Education

- Nature of the disease
  - May be symptomatic or asymptomatic, douching may worsen vaginal discharge, untreated trichomoniasis associated with adverse pregnancy outcomes
- Transmission issues
  - Almost always sexually transmitted, fomite transmission rare, may persist for months to years, associated with increased susceptibility to HIV acquisition

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Trichomoniasis Curriculum Prevention

### Risk Reduction

The clinician should:

- Assess patient's potential for behavior change
- Discuss individualized risk-reduction plans with the patient
- Discuss prevention strategies such as abstinence, monogamy, use of condoms, and limiting the number of sex partners
- Latex condoms, when used consistently and correctly, can reduce the risk of transmission of *T. vaginalis*

36

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Candidiasis Curriculum

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## Vaginitis

Vulvovaginal Candidiasis (VVC)



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Candidiasis Curriculum

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## Learning Objectives

Upon completion of this content, the learner will be able to:

1. Describe the epidemiology of candidiasis in the U.S.
2. Describe the pathogenesis of candidiasis.
3. Describe the clinical manifestations of candidiasis.
4. Identify common methods used in the diagnosis of candidiasis.
5. List CDC-recommended treatment regimens for candidiasis.
6. Describe patient follow-up and partner management for candidiasis.
7. Summarize appropriate prevention counseling messages for patients with candidiasis.

38

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Candidiasis Curriculum

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## Lessons

- I. Epidemiology: Disease in the U.S.
- II. Pathogenesis
- III. Clinical manifestations
- IV. Diagnosis
- V. Patient management
- VI. Prevention

39

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Candidiasis Curriculum

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Lesson I: Epidemiology:  
Disease in the U.S.

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Candidiasis Curriculum

Epidemiology

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VVC Epidemiology

- Affects most females during lifetime
- Most cases caused by *C. albicans* (85%-90%)
- Second most common cause of vaginitis
- Estimated cost: \$1 billion annually in the U.S.

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Candidiasis Curriculum

Epidemiology

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Transmission

- Candida species are normal flora of skin and vagina and are not considered to be sexually transmitted pathogens

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Candidiasis Curriculum

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## Lesson II: Pathogenesis

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Candidiasis Curriculum Pathogenesis

### Microbiology

- Candida species are normal flora of the skin and vagina
- VVC is caused by overgrowth of *C. albicans* and other non-albicans species
- Yeast grows as oval budding yeast cells or as a chain of cells (pseudohyphae)
- Symptomatic clinical infection occurs with excessive growth of yeast
- Disruption of normal vaginal ecology or host immunity can predispose to vaginal yeast infections

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Candidiasis Curriculum

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## Lesson III: Clinical Manifestations

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Candidiasis Curriculum Clinical Manifestations

### Clinical Presentation and Symptoms

- Vulvar pruritis is most common symptom
- Thick, white, curdy vaginal discharge ("cottage cheese-like")
- Erythema, irritation, occasional erythematous "satellite" lesion
- External dysuria and dyspareunia

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Candidiasis Curriculum Clinical Manifestations

### Vulvovaginal Candidiasis



Source: Health Canada, Sexual Health and STI Section, Clinical Slide Gallery

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Candidiasis Curriculum

### Lesson IV: Candidiasis Diagnosis

48

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Candidiasis Curriculum Diagnosis

## Diagnosis

- History, signs and symptoms
- Visualization of pseudohyphae (mycelia) and/or budding yeast (conidia) on KOH or saline wet prep
- pH normal (4.0 to 4.5)
  - If pH > 4.5, consider concurrent BV or trichomoniasis infection
- Cultures not useful for routine diagnosis

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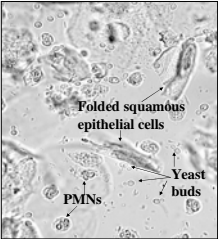
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Candidiasis Curriculum Diagnosis

## PMNs and Yeast Buds

Saline: 40X objective



Folded squamous epithelial cells  
 PMNs  
 Yeast buds

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Source: Seattle STD/HIV Prevention Training Center at the University of Washington

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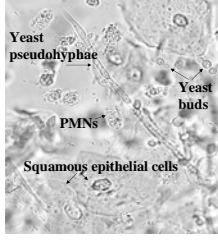
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Candidiasis Curriculum Diagnosis

## PMNs and Yeast Pseudohyphae

Saline: 40X objective



Yeast pseudohyphae  
 PMNs  
 Squamous epithelial cells  
 Yeast buds

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Source: Seattle STD/HIV Prevention Training Center at the University of Washington

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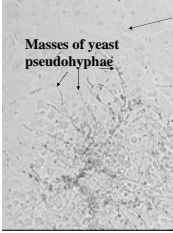
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Candidiasis Curriculum Diagnosis

## Yeast Pseudohyphae

10% KOH: 10X objective

Masses of yeast pseudohyphae



Lysed squamous epithelial cell

Source: Seattle STD/HIV Prevention Training Center at the University of Washington 52

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Candidiasis Curriculum

## Lesson V: Patient Management

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Candidiasis Curriculum Management

## Classification of VVC

<p><b>Uncomplicated VVC</b></p> <ul style="list-style-type: none"> <li>- Sporadic or infrequent vulvovaginal candidiasis</li> </ul> <p>Or</p> <ul style="list-style-type: none"> <li>- Mild-to-moderate vulvovaginal candidiasis</li> </ul> <p>Or</p> <ul style="list-style-type: none"> <li>- Likely to be <i>C. albicans</i></li> </ul> <p>Or</p> <ul style="list-style-type: none"> <li>- Non-immunocompromised women</li> </ul>	<p><b>Complicated VVC</b></p> <ul style="list-style-type: none"> <li>- Recurrent vulvovaginal candidiasis (RVVC)</li> </ul> <p>Or</p> <ul style="list-style-type: none"> <li>- Severe vulvovaginal candidiasis</li> </ul> <p>Or</p> <ul style="list-style-type: none"> <li>- Non-albicans candidiasis</li> </ul> <p>Or</p> <ul style="list-style-type: none"> <li>- Women with uncontrolled diabetes, debilitation, or immunosuppression or those who are pregnant</li> </ul>
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Candidiasis Curriculum Management

## Uncomplicated VVC

- Mild to moderate signs and symptoms
- Non-recurrent
- 75% of women have at least one episode
- Responds to short course regimen

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Candidiasis Curriculum Management

## CDC-Recommended Treatment Regimens

- **Intravaginal agents:**
  - Butoconazole 2% cream, 5 g intravaginally for 3 days†
  - Butoconazole 2% sustained release cream, 5 g single intravaginally application
  - Clotrimazole 1% cream 5 g intravaginally for 7-14 days†
  - Clotrimazole 100 mg vaginal tablet for 7 days
  - Clotrimazole 100 mg vaginal tablet, 2 tablets for 3 days
  - Clotrimazole 500 mg vaginal tablet, 1 tablet in a single application
  - Miconazole 2% cream 5 g intravaginally for 7 days†
  - Miconazole 100 mg vaginal suppository, 1 suppository for 7 days†
  - Miconazole 200 mg vaginal suppository, 1 suppository for 3 days†
  - Nystatin 100,000-unit vaginal tablet, 1 tablet for 14 days
  - Tioconazole 6.5% ointment 5 g intravaginally in a single application†
  - Terconazole 0.4% cream 5 g intravaginally for 7 days
  - Terconazole 0.8% cream 5 g intravaginally for 3 days
  - Terconazole 80 mg vaginal suppository, 1 suppository for 3 days
- **Oral agent:**
  - Fluconazole 150 mg oral tablet, 1 tablet in a single dose

Note: The creams and suppositories in this regimen are oil-based and may weaken latex condoms and diaphragms. Refer to condom product labeling for further information.  
† Over-the-counter (OTC) preparations.

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Candidiasis Curriculum Management

## Complicated VVC

- **Recurrent (RVVC)**
  - Four or more episodes in one year
- **Severe**
  - Edema
  - Excoriation/fissure formation
- **Non-albicans candidiasis**
- **Compromised host**
- **Pregnancy**

57

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Candidiasis Curriculum Management

### Complicated VVC Treatment

- Recurrent VVC (RVVC)
  - 7-14 days of topical therapy, or
  - 150 mg oral dose of fluconazole repeated 3 days later
  - Maintenance regimens (see CDC STD treatment guidelines)
- Severe VVC
  - 7-14 days of topical therapy, or
  - 150 mg oral dose of fluconazole repeated in 72 hours

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Candidiasis Curriculum Management

### Complicated VVC Treatment (continued)

- Non-albicans
  - Optimal treatment unknown
  - 7-14 days non-fluconazole therapy
  - 600 mg boric acid in gelatin capsule vaginally once a day for 14 days
- Compromised host
  - 7-14 days of topical therapy

59

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Candidiasis Curriculum

### Lesson VI: Prevention

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Candidiasis Curriculum Prevention

### Partner Management

- VVC is not usually acquired through sexual intercourse.
- Treatment of sex partners is not recommended but may be considered in women who have recurrent infection.
- A minority of male sex partners may have balanitis and may benefit from treatment with topical antifungal agents to relieve symptoms.

61

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Candidiasis Curriculum Prevention

### Patient Counseling and Education

- Nature of the disease
  - Normal vs. abnormal vaginal discharge, signs and symptoms of candidiasis, maintain normal vaginal flora
- Transmission Issues
  - Not sexually transmitted
- Risk reduction
  - Avoid douching, avoid unnecessary antibiotic use, complete course of treatment

62

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Bacterial Vaginosis Curriculum

## Vaginitis

Bacterial Vaginosis (BV)



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Bacterial Vaginosis Curriculum

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## Learning Objectives

Upon completion of this content, the learner will be able to:

1. Describe the epidemiology of bacterial vaginosis in the U.S.
2. Describe the pathogenesis of bacterial vaginosis.
3. Describe the clinical manifestations of bacterial vaginosis.
4. Identify common methods used in the diagnosis of bacterial vaginosis.
5. List CDC-recommended treatment regimens for bacterial vaginosis.
6. Describe patient follow up and partner management for patients with bacterial vaginosis.
7. Summarize appropriate prevention counseling messages for patients with bacterial vaginosis.

64

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Bacterial Vaginosis Curriculum

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## Lessons

- I. Epidemiology: Disease in the U.S.
- II. Pathogenesis
- III. Clinical manifestations
- IV. Diagnosis
- V. Patient management
- VI. Prevention

65

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Bacterial Vaginosis Curriculum

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## Lesson I: Epidemiology: Disease in the U.S.

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Bacterial Vaginosis Curriculum Epidemiology

### Epidemiology

- Most common cause of vaginitis
- Prevalence varies by population:
  - 5%-25% among college students
  - 12%-61% among STD patients
- Widely distributed

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Bacterial Vaginosis Curriculum Epidemiology

### Epidemiology (continued)

- Linked to premature rupture of membranes, premature delivery and low birth-weight delivery, acquisition of HIV, development of PID, and post-operative infections after gynecological procedures
- Organisms do not persist in the male urethra

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Bacterial Vaginosis Curriculum Epidemiology

### Risk Factors

- African American
- Two or more sex partners in previous six months/new sex partner
- Douching
- Absence of or decrease in lactobacilli
- Lack of H<sub>2</sub>O<sub>2</sub>-producing lactobacilli

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Bacterial Vaginosis Curriculum Epidemiology

## Transmission

- Currently not considered a sexually transmitted disease, but acquisition appears to be related to sexual activity

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Bacterial Vaginosis Curriculum

## Lesson II: Pathogenesis

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Bacterial Vaginosis Curriculum Pathogenesis

## Microbiology

- Overgrowth of bacteria species normally present in vagina with anaerobic bacteria
- BV correlates with a decrease or loss of protective lactobacilli:
  - Vaginal acid pH normally maintained by lactobacilli through metabolism of glucose/glycogen
  - Hydrogen peroxide ( $H_2O_2$ ) is produced by some *Lactobacilli*, sp.
  - $H_2O_2$  helps maintain a low pH, which inhibits bacteria overgrowth
  - Loss of protective lactobacilli may lead to BV

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Bacterial Vaginosis Curriculum Pathogenesis

### H<sub>2</sub>O<sub>2</sub> -Producing Lactobacilli

- All lactobacilli produce lactic acid
- Some species also produce H<sub>2</sub>O<sub>2</sub>
- H<sub>2</sub>O<sub>2</sub> is a potent natural microbicide
- Present in 42%-74% of females
- Thought to be toxic to viruses like HIV

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Bacterial Vaginosis Curriculum

### Lesson III: Clinical Manifestations

74

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Bacterial Vaginosis Curriculum Clinical Manifestations

### Clinical Presentation and Symptoms

- 50% asymptomatic
- Signs/symptoms when present:
  - 50% report malodorous (fishy smelling) vaginal discharge
  - Reported more commonly after vaginal intercourse and after completion of menses

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Bacterial Vaginosis Curriculum

## Lesson VI: Diagnosis

76

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Bacterial Vaginosis Curriculum Diagnosis

### Wet Prep: Bacterial Vaginosis

Saline: 40X objective

77

Source: Seattle STD/HIV Prevention Training Center at the University of Washington

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Bacterial Vaginosis Curriculum Diagnosis

### BV Diagnosis: Amsel Criteria

- > Vaginal pH >4.5
- > Presence of >20% per HPF of "clue cells" on wet mount examination
- > Positive amine or "whiff" test
- > Homogeneous, non-viscous, milky-white discharge adherent to the vaginal walls

Amsel Criteria:  
Must have at least three of the following findings:

78

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Bacterial Vaginosis Curriculum Diagnosis

### Other Diagnostic Tools

- Vaginal Gram stain (Nugent criteria)
- Culture
- DNA probe
- Newer diagnostic modalities include:
  - FemExam™
  - PIP Activity TestCard™

79

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Bacterial Vaginosis Curriculum

### Lesson V: Patient Management

80

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Bacterial Vaginosis Curriculum Management

### Treatment

**CDC-recommended regimens:**

- Metronidazole 500 mg orally twice a day for 7 days, OR
- Metronidazole gel 0.75%, one full applicator (5 grams) intravaginally, once a day for 5 days, OR
- Clindamycin cream 2%, one full applicator (5 grams) intravaginally at bedtime for 7 days

**Alternative regimens:**

- Metronidazole 2 g orally in a single dose, OR
- Clindamycin 300 mg orally twice a day for 7 days, OR
- Clindamycin ovules 100 g intravaginally once at bedtime for 3 days

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Bacterial Vaginosis Curriculum Management

### Treatment in Pregnancy

- Pregnant women with symptomatic disease should be treated with
  - Metronidazole 250 mg orally 3 times a day for 7 days, OR
  - Clindamycin 300 mg orally twice a day for 7 days
- Asymptomatic high-risk women (those who have previously delivered a premature infant)
  - May be screened at first prenatal visit
  - Follow up 1 month after completion of therapy

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Bacterial Vaginosis Curriculum Management

### Screening and Treatment in Asymptomatic Patients

- Asymptomatic screening of low-risk pregnant women is not recommended.
- Therapy is not recommended for male partners of women with BV.
- Female partners of women with BV should be examined and treated if BV is present.
- Screen and treat women prior to surgical abortion or hysterectomy.

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Bacterial Vaginosis Curriculum Management

### Recurrence

- 20% recurrence rate after 1 month
- Recurrence may be a result of persistence of BV-associated organisms and failure of lactobacillus flora to recolonize.
- Data do not support yogurt therapy or exogenous oral lactobacillus treatment.
- Under study: vaginal suppositories containing human lactobacillus strains

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Bacterial Vaginosis Curriculum

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## Lesson VI: Prevention

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Bacterial Vaginosis Curriculum

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Prevention

### Partner Management

- After multiple occurrences, some consider empiric treatment of male sex partners to see if recurrence rate diminishes, but this approach has not been validated.

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Bacterial Vaginosis Curriculum

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Prevention

### Patient Counseling and Education

- Nature of the Disease
  - Normal vs. abnormal discharge, malodor, BV signs and symptoms, sexually associated
- Transmission Issues
  - Not sexually transmitted between heterosexuals, high association in female same-sex partnerships
- Risk Reduction
  - Avoid douching
  - Limit number of sex partners

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# Case Study

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Case Study



## History

**Tanya Walters**

- 24-year-old single female
- Presents with complaints of a smelly, yellow vaginal discharge and slight dysuria for 1 week
- Denies vulvar itching, pelvic pain, or fever
- 2 sex partners during the past year—did not use condoms with these partners—on oral contraceptives for birth control
- No history of sexually transmitted diseases, except for trichomoniasis 1 year ago
- Last check up 1 year ago

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Case Study

## Physical Exam

- Vital signs: blood pressure 112/78, pulse 72, respiration 15, temperature 37.3° C
- Cooperative, good historian
- Chest, heart, breast, musculoskeletal, and abdominal exams within normal limits
- No flank pain on percussion
- Normal external genitalia with a few excoriations near the introitus, but no other lesions
- Speculum exam reveals a moderate amount of frothy, yellowish, malodorous discharge, without visible cervical mucopus or easily induced cervical bleeding
- Bimanual examination was normal without uterine or adnexal tenderness

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Case Study

### Questions

1. What is your differential diagnosis based on history and physical examination?
2. Based on the differential diagnosis of vaginitis, what is the etiology?
3. Which laboratory tests should be offered or performed?

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Case Study

### Laboratory Results

- Vaginal pH -- 6.0
- Saline wet mount of vaginal secretions -- numerous motile trichomonads and no clue cells
- KOH wet mount -- negative for budding yeast and hyphae

4. What may one reasonably conclude about Tanya's diagnosis?
5. What is the appropriate CDC-recommended treatment for this patient?

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Case Study

### Partner Management

	<b>Jamie</b>		<b>Calvin</b>
• Last sexual contact: 2 days ago	• First sexual contact: 2 months ago	• Twice a week, vaginal sex	
		• Last sexual contact: 6 months ago	• First sexual contact: 7 months ago
		• 3 times a week, vaginal and oral sex	

6. How should Jamie and Calvin be managed?

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### Follow-Up

- Tanya was prescribed metronidazole 2 g orally, and was instructed to abstain from sexual intercourse until her partner was treated.
- She returned two weeks later. She reported taking her medication, but had persistent vaginal discharge that had not subsided with treatment. She reported abstinence since her clinic visit, and her partner had moved out of the area. Her tests for chlamydia and gonorrhea were negative.
- The vaginal wet mount again revealed motile trichomonads.

7. What is the appropriate therapy for Tanya now?
8. What are appropriate prevention recommendations for Tanya?

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