An Invitation to Health: Build Your Future

DIANNE HALES

15TH EDITION
After studying the material in this chapter, you should be able to:

- Classify common STIs by transmission mode, symptoms, and treatments.
- Discuss STI risk factors, calculate your risk, and identify behaviors you can modify to reduce your risk.
- Recite the ABCs of safer sex, and explain some specific steps for safeguarding sexual health.
- Identify criteria for receiving the HPV vaccination.
- Discuss the incidence of HIV, strategies for reducing transmission, and treatments.
There’s something I have to tell you.” Anise knew, just by the sound of her boyfriend’s voice, that the “something” wasn’t good news.

“My herpes is back.”

Stunned, Anise tried to absorb all the information packed into this short sentence: She’d had no idea that the man she’d been sleeping with for several months had a sexually transmitted infection (STI).

Lowering Your Risk of Sexually Transmitted Infections

How did he get it? What else hadn’t he told her about his past? What did he mean that it was “back”? Could she have caught it? And, finally, she asked the all-too-human question: How could this have happened to me?

By their very nature, infectious diseases take people by surprise. Some of today’s most common and dangerous infectious illnesses spread primarily through sexual contact, and their incidence has skyrocketed. The federal government estimates that 65 million Americans have a sexually transmitted infection (STI). The odds of acquiring an STI in the course of a lifetime are one in four. These diseases cannot be prevented in the laboratory. Only you, by your behavior, can prevent and control them.

All human beings are sexual from birth to death. Whether you are male or female, single or married, straight, gay, lesbian, bisexual, or transgender, sexuality is a normal, natural part of your life. You are just as responsible for your sexual health as for any other aspect of your well-being. To safeguard your sexual health, you need to be aware of and protect yourself from sexually transmitted infections and diseases.

Sexually Transmitted Infections and Diseases

In medical terms sexually transmitted infection (STI) refers to the presence of an infectious agent that can be passed from one sexual partner to another. In public health this term is replacing sexually transmitted disease (STD) because sexual infections can be—and often are—transmitted by people who do not have symptoms.
Most STIs are spread by viruses or bacteria carried in certain body fluids.

**Figure 11.1  How STIs Spread**

Most STIs are spread by viruses or bacteria carried in certain body fluids.

**Health in the Headlines**

**STIs and Health**

As you learned in this chapter, the odds of acquiring an STI in your lifetime are one in four. Thus, it is in your best interest to be informed about the latest developments regarding STIs.

Scan the Latest News feed, and choose an article to summarize for your online journal entry. Are you doing what you can to ensure that you aren’t part of the statistics?

STIs occur in all animals (and even plants) that reproduce sexually. Some people view sexual infections in moral terms. By attaching stigma and shame to STIs, these individuals may not seek treatment and thereby jeopardize their sexual health. However, embarrassment should never justify putting your health at risk.

Remember, STIs can:

- Last a lifetime.
- Put stress on relationships.
- Cause serious medical complications.
- Impair fertility.
- Cause birth defects.
- Lead to major illness and death.

(See Health in the Headlines: STIs and Health.)

According to the CDC, STDs cost the U.S. health-care system an estimated $15.3 billion annually.

Although each STI is distinct, they are all transmitted mainly through:

- Direct sexual contact with someone’s symptoms (like genital ulcers) or sexual contact with someone’s infected semen, vaginal fluids, blood, and other body fluids.
- Sharing contaminated needles through injectable drug use.
- Maternal transfer (mother to fetus during pregnancy or childbirth).

All STI pathogens like dark, warm, moist body surfaces, particularly the mucous membranes that line the reproductive organs; they hate light, cold, and dryness. Figure 11.1 shows how STIs in body fluids spread from person to person and how a barrier can help prevent their entry.

Table 11.1 lists the common STIs, their transmission, symptoms, and treatment. It is possible to catch or have more than one STI at a time. Curing one doesn’t necessarily cure another, and treatments don’t prevent another bout with the same STI.

Many STIs, including early HIV infection and gonorrhea in women, may not cause any symptoms. As a result, infected individuals may continue their usual sexual activity without realizing that they’re jeopardizing another’s well-being.

More Americans are infected with STIs now than at any other time in history. According to the Institute of Medicine, the odds of acquiring an STI during a lifetime are one in four. About 19 million new STIs occur each year in the United States. Young people under age 25 account for nearly half.

Within two years of having sex for the first time, half of teenage girls may acquire an STI. The three most common are chlamydia, gonorrhea, and trichomoniasis; a quarter of the girls infected in a recent study were under age 15.1 Rates of chlamydia and gonorrhea are consistently highest in the 15- to 24-year age range.2

**STIs on Campus**

The college years are a prime time for contracting STIs. According to a recent survey, almost nine in ten undergraduates are sexually active, but only about half reported using a condom the last time they had vaginal intercourse or using one mostly or always within the last 30 days. Fewer (31 percent) used condoms the last time they engaged in anal sex; only 4 percent used condoms for oral sex.3
<table>
<thead>
<tr>
<th>STI</th>
<th>Transmission</th>
<th>Signs and Symptoms</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human papillomavirus (HPV)</td>
<td>Spread primarily through vaginal, anal, or oral sex</td>
<td>Cauliflower-like growths in genital and rectal areas</td>
<td>Removal of lesions by laser surgery or chemicals</td>
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<td>(genital warts) (p. 364)</td>
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<tr>
<td>Herpes simplex (p. 366)</td>
<td>Genital herpes virus (HSV-2) transmitted by vaginal, anal, or oral sex. Oral herpes virus (HSV-1) transmitted primarily by kissing.</td>
<td>Small, painful red bumps (papules) to the genital region (genital herpes) or mouth (oral herpes). The papules become painful blisters that eventually rupture to form wet, open sores.</td>
<td>No known cure. Treatment may reduce symptoms; acyclovir, famcyclovir, or valacyclovir promote healing and suppress recurrent outbreaks.</td>
</tr>
<tr>
<td>Chlamydia (p. 368)</td>
<td>Chlamydia trachomatis bacterium transmitted primarily through sexual contact (can also be spread by fingers from one body site to another)</td>
<td>Men: Watery discharge; pain when urinating. Women: Usually asymptomatic; sometimes a similar discharge to men's; leading cause of pelvic inflammatory disease (PID)</td>
<td>Antibiotics: doxycycline, azithromycin, ofloxacin, levofloxacin</td>
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<tr>
<td>Gonorrhea (&quot;clap&quot;) (p. 370)</td>
<td>Neisseria gonorrhoeae bacterium (&quot;gonococcus&quot;) spread through genital, oral-genital, or genital-anal contact</td>
<td>Men: Pus discharge from urethra; burning during urination. Women: Usually asymptomatic; can lead to PID and sterility in both men and women</td>
<td>Antibiotics: cephalosporins (ceftriaxone or cefixime)</td>
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<tr>
<td>Nongonococcal urethritis (NGU)</td>
<td>Bacteria, most commonly transmitted through sexual intercourse</td>
<td>Men: Discharge from the penis and irritation during urination. Women: Mild discharge of pus from the vagina but often no symptoms</td>
<td>A single dose of azithromycin or doxycycline for seven days</td>
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<td>(p. 370)</td>
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<tr>
<td>Syphilis (p. 371)</td>
<td>Treponema pallidum bacterium (&quot;spirochete&quot;) transmitted from open lesions during genital, oral-genital, or genital-anal contact</td>
<td>Primary: Chancre. Secondary: Rash. Latent: Asymptomatic. Late: Irreversible damage to central nervous system, cardiovascular system</td>
<td>Penicillin or other antibiotic</td>
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<tr>
<td>Chancroid (p. 372)</td>
<td>Haemophilus ducreyi bacterium transmitted by sexual interaction</td>
<td>Men: Painful irregular chancre on penis. Women: Chancre on labia</td>
<td>Tetracycline</td>
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<td>Pubic lice (&quot;crabs&quot;) (p. 372)</td>
<td>Phthirus pubis spread easily through body contact or through shared clothing or bedding</td>
<td>Persistent itching; visible lice often located in public hair or other body hairs</td>
<td>1% permethrin cream for body areas; 1% lindane shampoo for hair</td>
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<tr>
<td>HIV/AIDS (p. 373)</td>
<td>HIV transmitted in blood and semen, primarily through sexual contact or needle sharing among injection drug users</td>
<td>Asymptomatic at first; opportunistic infections</td>
<td>Combination of three or more antiretroviral drugs (termed highly active antiretroviral therapies, or ART) plus other specific treatment for opportunistic infections and tumors</td>
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HOW DO YOU COMPARE?

PROTECTING YOUR SEXUAL HEALTH

<table>
<thead>
<tr>
<th>Students</th>
<th>Percent</th>
<th>Students</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Vaccinated against HPV</td>
<td>33.2</td>
<td>Diagnosed with chlamydia</td>
<td>1.1</td>
</tr>
<tr>
<td>Tested for HIV infection</td>
<td>25.7</td>
<td>Diagnosed with genital herpes</td>
<td>0.8</td>
</tr>
<tr>
<td>Diagnosed with HPV</td>
<td>1.9</td>
<td>Diagnosed with PID</td>
<td>0.3</td>
</tr>
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HOW DO YOU COMPARE?

What have you done to protect yourself from STIs? Have you been vaccinated against HPV? Have you been tested for HIV (recommended for everyone over age 13)? The incidence of diagnosed STIs on campuses is low, but many individuals are not aware that they have these infections. Write down your feelings about how getting an STI might affect your health and your life in your online journal.

Source: American College Health Association, American College Health Association-National College Health Assessment 6: Reference Group Executive Summary Spring 2010 (Linthicum, MD: American College Health Association, 2010).

White college students, according to the American College Health Association-National College Health Assessment (NCHA), are less likely than African American undergraduates to use condoms for vaginal, oral, and anal sex or to be tested for HIV. Blacks, who reported more sexual partners, were less likely to use hormonal contraceptives and had higher rates of STIs and unintended pregnancy.\(^4\) (See How Do You Compare: Protecting Your Sexual Health.)

Contracting STIs may increase the risk of being infected with HIV. Because college students have more opportunities to have different sexual partners and may use drugs and alcohol more often before sex, they are at greater risk.

Colleges and universities vary in the STI services offered, including screening, diagnosis, and treatment. According to a recent survey, about half of students attend a school where STI screening is available. About half of colleges and universities make condoms available to students—some free in an open display, some free on request, and some for a fee or in vending machines. Larger schools, those with health centers, and those with on-campus housing are more likely to provide STI education and services.

STIs and Gender

Both men and women can develop STIs, but their risks are not the same. Here is what you need to know about your risks.

**If You Are a Woman**

- Keep in mind that your risk of getting an infection is greater than a man’s. STIs can be transmitted through breaks in the mucous membranes, and women have more mucosal area exposed and experience more trauma to these tissues during sexual activity than men.
- Don’t think you don’t have to worry just because you have no symptoms. Symptoms of STIs also tend to be more “silent” in women, so they often go undetected and untreated, leading to potentially serious complications. For instance, pelvic inflammatory disease has no symptoms but puts you at risk of infertility and ectopic pregnancy.
- At your checkup talk to your doctor about whether you should be tested for sexually transmitted infections. You need to ask for these tests, or else they won’t be done.
If You Are a Man

- Involve your partner. Men are more likely to avoid common errors, such as removing condoms before sexual contact ends or slipping during withdrawal, when both partners mutually decide on their use.
- After potential exposure to an STI, give yourself a little extra protection by urinating and washing your genitals with an antibacterial soap.
- At your checkup talk to your doctor about whether you should be tested for sexually transmitted infections. You need to ask for these tests, or else they won’t be done.

STI Risk Factors and Risk Continuum

Various factors put young people at risk of STIs, including:

- **Feelings of invulnerability**, which lead to risk-taking behavior. Even when they are well informed of the risks, adolescents and young adults may remain unconvinced that anything bad can or will happen to them.
- **Multiple partners**. Figure 11.2 illustrates how STI risks increase as relationships become less familiar and exclusive. In surveys of students, a significant number report having had four or more sexual partners during their lifetime.
- **Failure to use condoms**. Among those who reported having had sexual intercourse in the previous three months, fewer than half of the students reported condom use. Students who’d had four or more sexual partners were significantly less likely to use condoms than those who’d had fewer partners.
- **Substance abuse**. Individuals who drink or use drugs are more likely to engage in sexually risky behaviors, including sex with partners whose health status and history they do not know, and unprotected intercourse. The more alcohol that college students drink or the more marijuana they use, the more likely they are to engage in risky sexual behavior. In a study of young adults of traditional college age in New York City clubs, the majority of those who reported binge drinking said they had had sex under the influence of alcohol. Almost a third described these encounters as “less safe” because of their drinking.
- **Failure of a partner to be notified and treated**. Although physicians and health officials urge infected individuals to notify all their sexual partners, only an estimated 40 to 60 percent are notified and seek treatment. In surveys, infected individuals have indicated that they would be more likely to inform partners if they could do so via a website with anonymous e-mail and SMS services.

![Figure 11.2  Continuum of Risk for Sexual Relationships and Behaviors](image)

STI risks increase as relationships become less familiar and exclusive and as sexual activities become unprotected and receptive.
The ABCs of Safer Sex

Making smart, healthy choices about sex is the key to preventing sexual illnesses. (See Making Change Happen: The Sexiness of Safer Sex on p. 379, and in Labs for IPC.) As you will discover in this chapter, there are many specific steps to take to safeguard your sexual health. However, the three key fundamentals are as simple as A, B, C.

A Is for Abstain

Abstinence from vaginal and anal intercourse and oral sex is free, available to everyone, extremely effective at preventing both pregnancy and sexually transmitted infections, and has no medical or hormonal side effects. If you decide to abstain only from vaginal or anal penetration, remember that other sexual activity such as oral sex can also expose you to STIs. If you have oral sex, make it safer by using effective barrier methods such as condoms or latex dental dams. (A dental dam is a square piece of latex that can be stretched across the vulva or anus to prevent the transmission of STI.) In the absence of barrier methods, men should avoid ejaculating in their partners’ mouths. Also,

- Be aware of sores and discharge or unpleasant odors from your partner’s genitals. These are signs to avoid oral sex.
- Don’t floss or brush teeth before oral sex. It might tear the lining of the mouth, increasing exposure to viruses.
- Avoid aggressive and deep thrusting in oral sex, which can damage throat tissues and increase susceptibility for throat-based gonorrhea, herpes, and abrasions.
- Remember that oral sex can transmit various STIs, including HPV, herpes, gonorrhea, syphilis, and HIV.

B Is for Be Faithful

For men and women who are sexually active, a mutually faithful sexual relationship with just one healthy partner is the safest option. Women and men in a committed relationship don’t need to worry about getting sexually transmitted infections if:

- They are mutually faithful. His sexual partners are his wife or girlfriend; her sexual partners are her husband or boyfriend. They only have sex with each other.

The CDC has endorsed “expedited partner therapy” (giving medications to the infected person to give to partners) as more effective in cases of gonorrhea, chlamydia, or trichomoniasis. This approach is permissible or potentially allowable in most states but prohibited in Arkansas, Florida, Kentucky, Michigan, Ohio, Oklahoma, South Carolina, Vermont, and West Virginia.9

Rate your own sexual health risk by taking the Self Survey, “Assessing Your STI Risk” on page 377.
• Neither partner ever had sex with anyone else.
• Neither partner ever shared needles.
• Neither partner currently has or ever had an STI.

If these criteria fail to apply, two partners should be sure that neither has an STI before giving up on safer-sex practices. Some infections, like HIV, may take years to develop symptoms. The only way to know is by testing.

Of course, a committed relationship remains safe only as long as both partners remain committed. Most women who get HIV from having sex think they are their sex partners’ only lover and never suspect that their partners’ other lovers are men or women with HIV. (See Health in Action: Telling a Partner You Have an STI.)

C Is for Condoms

Condoms are the only contraceptive that helps prevent both pregnancy and STIs when used properly and consistently. Male condoms reduce the risk of transmission of an STI by 50 to 80 percent. They are more effective against STIs transmitted by bodily fluids (chlamydia, gonorrhea, HIV, etc.) than those transmitted by skin-to-skin contact (HPV, syphilis, herpes, chancroid). Inexpensive and widely available in pharmacies, supermarkets, and convenience stores, condoms don’t require a doctor visit or a prescription.

Most physicians recommend prelubricated, American-made latex or polyurethane condoms. Check the package for FDA approval. Also check the expiration (Exp) or manufacture (MFG) date on the box or individual package to see until when it is safe to use the condom. Make sure the package and the condom appear in good condition. If the package does not state that the condoms are meant to prevent disease, they may not provide adequate protection even if they are the most expensive ones on the shelf. Get the right size. Ill-fitting condoms lead to more problems with slippage and breakage as well as diminished sexual pleasure. Men also may be more likely to remove a condom that doesn’t fit well before sex.

Condoms can deteriorate if not stored properly since they are affected by both heat and light. Don’t use a condom that has been stored in your back pocket, your wallet, or the glove compartment of your car. Keep fresh condoms handy at all times. If a condom feels sticky or very dry don’t use it; the packaging has probably been damaged.

Although it can be awkward to bring up the subject of condoms, don’t let your embarrassment put your health at risk. Discuss using a condom before having sex; don’t wait until you’re on the brink of a sexual encounter.

See Chapter 10 for instructions on how to put on a condom. Here are some additional guidelines:

• **Use a new condom** each and every time you engage in any form of intercourse.

• **Do not use spermicide containing nonoxynol-9.** According to recent research, nonoxynol-9 without condoms is ineffective against HIV transmission. Even with condoms, it does not protect women from the bacteria that cause gonorrhea and chlamydia.

• **If a condom fails** during vaginal or anal intercourse, remove it carefully. If you continue sexual activity, replace it with a new condom.

Your Strategies for Change

**What to Do If You Have an STI**

• If you suspect that you have an STI, don’t feel too embarrassed to get help through a physician’s office or a clinic. Treatment relieves discomfort, prevents complications, and halts the spread of the disease.

• **Following diagnosis, take oral medication** (which may be given instead of or in addition to shots) exactly as prescribed.

• **Try to figure out from whom you got the STI.** Be sure to inform that person, who may not be aware of the problem.

• **If you have an STI, never deceive a prospective partner about it.** Tell the truth—simply and clearly. Be sure your partner understands exactly what you have and what the risks are.
Human Papillomavirus

Human papillomavirus (HPV) is the most common sexually transmitted infection. According to a recent international study, half of adult men may be infected with HPV. The risk is highest in men who have sex with men and men who have sex with both men and women.

Most people who become infected with HPV do not have any symptoms, and the infection clears on its own. However, HPV infection can cause cervical cancer in women and genital warts and other types of cancers in both sexes.

The biggest risk factor for HPV infection in men is a large number of lifetime sex partners. Men who've had more than 16 sex partners have about three times the HPV risk of those with fewer sex partners and are nearly ten times more likely to contract a potentially cancer-causing strain. Once infected, men who have been circumcised are more likely to have their immune systems “clear” the virus. Circumcised men also are less likely to transmit the virus to female partners.

Of the 100 or more different strains, or types, of HPV, approximately 40 are sexually transmitted. Condoms provide only limited protection. Some “high-risk” HPV strains may lead to cancer of the cervix, vulva, vagina, anus, or penis. If transmitted via oral sex, they increase the risk of mouth and throat cancers. In a recent study, individuals with HPV infections were 32 times more likely to develop such cancers. The risk increases along with the number of oral sex partners.

The “low-risk” types of HPV may cause changes in cervical cells that cause Pap test abnormalities or genital warts. Genital warts are single or multiple growths or bumps, sometimes shaped like cauliflower, that appear in the genital area.

Among women ages 14 to 65 screened for cervical cancer, almost one in four tested positive for HPV. Over half of the women younger than 30 who had abnormal (although not clearly cancerous) cells on their Pap smear had HPV infection. About a third of women with HPV acquire the infection within the year following first intercourse. Almost half of young women with just one male partner may develop HPV over a three-year period. The probability of HPV infection increases with partners who had at least two previous sex partners.

College students’ awareness of HPV and their potential risk is very low. In one study, both sexes saw themselves as not susceptible to HPV. Male students were more likely than female students to think that only women could acquire HPV. In another report, even women with adequate to high levels of knowledge about HPV did not take steps such as using condoms or having regular Pap tests to protect themselves.

Incidence

Approximately 20 million people in the United States are currently infected with HPV, and 6.2 million Americans get a new HPV infection each year. Worldwide there are more than 440 million individuals with HPV infection. As many as 80 percent of sexually active women acquire HPV by age 50.

Young women who engage in sexual intercourse at an early age are more likely than those with later sexual debuts to become infected with HPV. Their risk also increases if they have multiple sexual partners or a history of a sexually transmitted infection, use drugs, or have partners with multiple sexual partners.

College-age women are among those at greatest risk of acquiring HPV infection. In various studies conducted in college health centers, 10 to 46 percent of female students (mean age 20 to 22) had positive HPV tests.

HPV Vaccination

Two vaccines—Gardasil and Cervarix—are currently available to prevent cervical cancer in girls and young women. Both protect against HPV-16 and HPV-18, the two types of HPV that cause most cases of cervical cancer. Gardasil also protects against HPV-6 and HPV-11, which cause most cases of genital warts.

Gardasil is approved for females ages 9 to 26 to protect against cervical cancer and prevent genital warts and for males ages 9 to 26 to prevent genital warts. Cervarix, which does not protect
against genital warts, is approved for females ages 10 to 26 to help prevent cervical cancer. Cervarix has not been approved for use in boys or men.

The American Academy of Pediatrics recommends HPV vaccination for all girls at age 11 or 12 and has stated that boys ages 9 to 18 “may” get Gardasil. This vaccine has proven safe and effective in male as well as female recipients. In girls and women who have never been infected with HPV, the vaccine can prevent almost all cases of disease caused by the targeted types of HPV, including cancers of the genitals, cervix, and anus.

Either brand of the vaccine is given in three shots over a six-month period, with the second and third doses administered two and six months after the first dose. Compliance rates for receiving all three doses have been low.

Girls and women ages 13 to 26 who have not been previously immunized or who have not completed the full vaccine series should get vaccinated to catch up on missed doses. Because some groups do not recommend women between ages 19 and 26 receive catch-up doses of this vaccine, talk with your health-care provider if you are in this age group.

There are risks associated with HPV vaccination. Adverse effects, reported in 6.2 percent of patients, include fainting, itchiness, headache, nausea, blood clots, allergic reactions, and death. This is considered within the normal range of a widespread vaccination program for young persons. However, there is controversy about weighing the relative risks and benefits. See Consumer Alert.

In a study of female college students, those who were 18 years old were four times more likely to have received the HPV vaccine than women ages 19 to 26. Those who were aware that HPV causes genital warts were more likely to have received at least one dose of the HPV vaccine. Fewer Asian and African American than white women had been vaccinated.

HPV screening and vaccination are most beneficial for younger women. According to recent research, the rate of newly detected HPV among women over age 42 is significantly lower than among those between ages 18 and 25, and vaccination offers little benefit for women in their forties or older.

**CONSUMER ALERT**

### Should You Get the HPV Vaccine?

Some states are considering legislation to make HPV vaccination mandatory for all girls because the vaccine is most effective when given before a girl becomes sexually active. Some religious groups oppose mandatory immunization because they feel that vaccinating girls against an STI gives them the wrong message about sexual responsibility. Consumer advocates worry about the unknown long-term effects. Others feel that the decision should be made privately by parents in consultation with their pediatricians.

**Facts to Know**

- The HPV vaccines, which consist of three shots given over a six-month period, have been extensively tested in thousands of young women worldwide and is considered safe. However, the long-term effects are not known.
- No one yet knows whether a booster shot or shots will be necessary.
- Adverse effects include fainting, nausea, headache, blood clots, allergic reactions, and death. The most common side effects are pain at the injection site and fever.
- An estimated 4,000 women die in the United States and about 274,000 women die internationally annually from cervical cancer. The National Cancer Institute estimates 11,300 new cases of cervical cancer each year.

**Steps to Take**

- Talk with your doctor if you are under age 26 and have not yet been vaccinated.
- Check with your insurance provider. Vaccination costs about $400 for the three-shot series. Most insurance companies cover recommended vaccines, but since this is new, yours may or may not.
- Do not get the HPV vaccine if you:
  - Are older than 26 (the vaccine is still being tested in women in this age group).
  - Are pregnant.
  - Have ever had a life-threatening allergic reaction to any component of HPV vaccine.
  - Are moderately to severely ill at the time of vaccination.
Signs and Symptoms

Most people with HPV infection do not know they are infected. The virus lives in the skin or mucous membranes and usually cause no symptoms. Some people get visible genital warts or have precancerous changes in the cervix, vulva, anus, or penis. After contact with an infected individual, genital warts may appear within three weeks to 18 months, with an average period of about 3 months.

HPV infection may invade the urethra and cause urinary obstruction and bleeding. It greatly increases a woman’s risk of developing a precancerous condition called cervical intraepithelial neoplasia, which can lead to cervical cancer. Adolescent girls infected with HPV appear to be particularly vulnerable to developing cervical cancer. It is not known if HPV itself causes cancer or acts in conjunction with cofactors (such as other infections, smoking, or suppressed immunity). A woman’s risk of cervical cancer is strongly related to the number of her partner’s current and lifetime female partners. Women are five to eleven times as likely to get cervical cancer if their steady sex partner has had 20 or more previous partners.

Most HPV infections are asymptomatic in men, who may unwittingly increase their partners’ risk. Men who test positive for HPV typically report significantly more sex partners than those who do not. HPV may also cause genital warts in men and increase the risk of cancer of the penis. People with visible genital warts also may have asymptomatic or subclinical HPV infections that are extremely difficult to treat.

Diagnosis and Treatment

Most women are diagnosed with HPV after an abnormal Pap test or HPV DNA test. The results of HPV DNA testing can help healthcare providers decide if treatment is necessary to prevent or treat cervical cancer. (See Chapter 15 for a discussion of cervical cancer.) Warning signs for cervical cancer include irregular bleeding or unusual vaginal discharge. Precancerous cervical cells can be destroyed by laser surgery or freezing during a visit to a doctor’s office.

No form of therapy has been shown to completely eradicate HPV, nor has any single treatment been uniformly effective in removing warts or preventing their recurrence. CDC guidelines suggest treatments that focus on the removal of visible warts—laser therapy cryotherapy (freezing), and topical applications of podophlox, podophyllin, or trichloroacetic acid—and then eradication of the virus. At least 20 to 30 percent of treated individuals experience recurrence.

Genital Herpes

Herpes (from the Greek word that means to creep) collectively describes some of the most common viral infections in humans. Characteristically, herpes simplex causes blisters on the skin or mucous membranes.

Herpes simplex exists in several varieties. Herpes simplex virus 1 (HSV-1) can be transmitted by kissing and generally causes cold sores and fever blisters around the mouth. Herpes simplex virus 2 (HSV-2) is sexually transmitted and may cause blisters on the penis, inside the vagina, on the cervix, in the pubic area, on the buttocks, on the thighs, or in the mouth and throat (transmitted via oral sex).

About 21 percent of women and 11.5 percent of men have genital herpes, according to a recent CDC report. More than 80 percent do not realize they are infected.16 HSV transmission occurs through close contact with mucous membranes or abraded skin. Condoms help prevent infection but aren’t foolproof.

In the past physicians viewed herpes as an episodic disease with the greatest risk of transmission during flare-up. But as recent research has documented, “classic herpes” that produces acute symptoms is not typical. For many people genital herpes is a chronic, nearly continuously active infection that may produce subtle, varied, and often overlooked symptoms.17 Most cases are transmitted by sexual partners who are unaware of their infections or do not have symptoms at the time of transmission.18

When herpes sores are present, the infected person is highly contagious and should avoid bringing the lesions into contact with someone else’s body through touching, sexual interaction, or kissing. However, the herpes virus is present in genital secretions even when patients do...
not notice any signs of the disease, and people infected with genital herpes can spread it even between flare-ups when they have no symptoms.

A newborn can be infected with genital herpes while passing through the birth canal, and the frequency of mother-to-infant transmission seems to be increasing. Most infected infants develop typical skin sores, which can be cultured to confirm a herpes diagnosis. Some physicians recommend treatment with acyclovir. Because of the risk to the infant of severe damage and possible death, caesarean delivery may be advised for a woman with active herpes lesions.

Incidence

At least 50 million people in the United States have genital herpes, but only a minority realize they are infected. About 40 percent of new cases of genital herpes occur in young people ages 15 to 24. An estimated one in five adolescents and adults in this age range have been infected. About one in four women and one in eight men carries the herpes virus.

Signs and Symptoms

Most people with genital herpes have no symptoms or very mild symptoms that go unnoticed or are not recognized as a sign of infection. The most common is a cluster of blistery sores, usually on the vagina, vulva, cervix, penis, buttocks, or anus. They may last several weeks and go away. They may return in weeks, months, or years.

Other symptoms include: blisters, burning feelings if urine flows over sores, inability to urinate if severe swelling of sores blocks the urethra, itching and pain in the infected area. Severe first episodes of herpes may also cause swollen, tender lymph glands in the groin, throat, and under the arms, fever, chills, headache, and achy flu-like feelings.

The virus that causes herpes never entirely goes away; it retreats to nerves near the lower spinal cord, where it remains for the life of the host. Herpes sores can return without warning weeks, months, or even years after their first occurrence, often during menstruation or times of stress, or with sudden changes in body temperature. Of those who experience HSV recurrence, 10 to 35 percent do so frequently—that is, about six or more times a year. In most people, attacks diminish in frequency and severity over time.

Diagnosis and Treatment

Testing for the herpes virus has become much more accurate. There are several highly effective antiviral therapies that not only reduce symptoms and heal herpes lesions but also, if taken continuously, significantly reduce the risk of transmission of the virus to sexual partners.

The three antiviral medications approved for the treatment of genital herpes are:

- **Acyclovir.** The oldest antiviral medication for herpes, acyclovir is sold as a generic drug and under the brand name Zovirax®. Available as an ointment and pill, acyclovir has been shown to be safe in persons who have used it continuously (every day) for as long as ten years.

- **Valacyclovir.** Sold as Valtrex®, this medication delivers acyclovir more efficiently so that the body absorbs more of the drug and medication can be taken fewer times during the day.

- **Famcyclovir.** Sold as Famvir®, this drug utilizes penciclovir as its active ingredient to stop HSV. Like valacyclovir, it is well absorbed, persists for a long time in the body, and can be taken less frequently than acyclovir.

These antiviral medications are prescribed for initial and recurrent episodes of herpes. In episodic therapy, a person begins taking medication at the first sign of recurrence and continues for several days to hasten the healing or prevent a full outbreak from occurring. In suppressive therapy, people with genital herpes take antiviral medication daily to prevent symptoms. For individuals who have frequent recurrences (six or more per year), suppressive therapy can reduce the number of outbreaks by at least 75 percent. Suppressive therapy may also reduce asymptomatic shedding of HSV.

Various treatments—compresses made with cold water, skim milk, or warm salt water; ice packs; or a mild anesthetic cream—can relieve discomfort. Herpes sufferers should avoid heat, hot baths, or nylon underwear. Some physicians have used laser therapy to vaporize the lesions.
Clinical trials of an experimental vaccine to protect people from herpes infections are under way.

### Chlamydia

The most widespread sexually transmitted bacterium in the United States is *Chlamydia trachomatis*, which causes more than a million cases of chlamydia each year, a number that continues to rise. Almost half of reported cases occur among sexually active young adults between ages 15 and 24. The use of condoms with spermicide can reduce, but not eliminate, the risk of chlamydial infection.

#### Incidence

A record number of Americans—some 1.1 million, or 1 in 25 young Americans—are infected with chlamydia. Chlamydia is much more prevalent in young black adults than in young white adults. However, this may be because black and Hispanic women are much more likely to be screened. Women have three times the rate of chlamydia as men. Chlamydial infections are more common in younger than in older women, and they also occur more often in both men and women with gonorrhea.

In a study of almost 800 students who volunteered for screening at ten southern colleges, nearly 10 percent tested positive for chlamydia, with higher rates among black women than white women. Younger students also were more likely to be infected than older ones, possibly because they are more likely to have unprotected intercourse, to engage in sex with multiple partners, and to have partners at higher risk for STDs.

Those at greatest risk of chlamydial infection are individuals 25 years old or younger who engage in sex with more than one new partner within a two-month period and women who use birth control pills or other nonbarrier contraceptive methods. The U.S. Preventive Services Task Force recommends regular screening for chlamydia for all sexually active women under age 25 and for older women with multiple sexual partners, a history of STIs, or inconsistent use of condoms.

#### Signs and Symptoms

As many as 75 percent of women and 50 percent of men with chlamydia have no symptoms or symptoms so mild that they don’t seek medical attention. Without treatment, up to 40 percent of cases of chlamydia can lead to pelvic inflammatory disease, a serious infection of the woman’s fallopian tubes that also can damage the ovaries and uterus. Also, women infected with chlamydia may have three to five times the risk of getting infected with HIV if exposed. Babies exposed to chlamydia in the birth canal during delivery can be born with pneumonia or with an eye infection called conjunctivitis, both of which can be dangerous unless treated early with antibiotics. Symptomless women who are screened and treated for chlamydial infection are almost 60 percent less likely than unscreened women to develop pelvic inflammatory disease. Chlamydia may also be linked to cervical cancer.

When women have symptoms of chlamydia they may experience

- Abdominal pain.
- Abnormal vaginal discharge.
- Bleeding between menstrual periods.
- Cervical or rectal inflammation.
- Low-grade fever.
- Yellowish discharge from the cervix that may have a foul odor.
- Vaginal bleeding after intercourse.
- Painful intercourse.
- Painful urination.
- The urge to urinate more than usual.

When men have symptoms of chlamydia, they may experience

- Pain or burning while urinating.
- Pur or watery or milky discharge from the penis.
- Swollen or tender testicles.
- Rectal inflammation.

Men often don’t take these symptoms seriously because the symptoms may appear only early in the day and can be very mild.

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**chlamydia** A sexually transmitted infection caused by the bacterium *Chlamydia trachomatis*, often asymptomatic in women, but sometimes characterized by urinary pain; if undetected and untreated, may result in pelvic inflammatory disease (PID).
Chlamydia, which can spread from a man’s urethra to his testicles, can also cause a condition called epididymitis, which can cause sterility. Symptoms include fever, swelling, and extreme pain in the scrotum. Six percent of men with epididymitis develop reactive arthritis, which causes swelling and pain in the joints and can progress and become disabling.

In women and men, chlamydia may cause the rectum to itch and bleed. It can also result in a discharge and diarrhea. If it infects the eyes, it may cause redness, itching, and a discharge. If it infects the throat, it may cause soreness.

Diagnosis and Treatment

Various antibiotics such as azithromycin and doxycycline kill Chlamydia. Some are taken in a single dose; others over several days. Both partners must be treated to avoid reinfections.

The CDC, in its most recent guidelines, recommends that all women with chlamydia be rescreened three to four months after treatment is completed. The reason is that reinfection, which often happens because a patient’s sex partners were not treated, increases the risk of pelvic inflammatory disease and other complications. Immediately treating the partners of people infected with gonorrhea or chlamydia can reduce rates of recurrence of these infections.

Pelvic Inflammatory Disease (PID)

Infection of a woman’s fallopian tubes or uterus, called pelvic inflammatory disease (PID), is not actually an STI, but rather a complication of STIs. Ten to 20 percent of initial episodes of PID lead to scarring and obstruction of the fallopian tubes severe enough to cause infertility. Other long-term complications are ectopic pregnancy and chronic pelvic pain. Smoking also may increase the likelihood of PID. Two bacteria—Gonococcus (the culprit in gonorrhea) and Chlamydia—are responsible for one-half to one-third of all cases of PID. Other organisms are responsible for the remaining cases.

Several studies have shown that women with PID are more likely to have used douches than those without the disease. Consistent condom use may decrease PID risk.

Incidence

About one in every seven women of reproductive age has PID; half of all adult women may have had it. Each year, about 1 million new cases are reported.

Most cases of PID occur among women under age 25 who are sexually active. Gonococcus—caused cases tend to affect poor women; those caused by Chlamydia range across all income levels. One-half to one-third of all cases are transmitted sexually, and others have been traced to some IUDs that are no longer on the market.

Signs and Symptoms

PID is a silent disease that in half of all cases produces no noticeable symptoms as it progresses and causes scarring of the fallopian tubes. Experts are encouraging women with mild symptoms, such as abdominal pain or tenderness, to seek medical evaluation and are encouraging physicians to test these patients for infections.

Other symptoms include fever, vaginal discharge that may have a foul odor, painful intercourse or urination, irregular menstrual bleeding, and, rarely, pain in the right upper abdomen.

Diagnosis and Treatment

Urine testing is a cost-effective method of detecting gonorrhea and chlamydia in young women and can prevent development of PID. For women with symptoms, a pelvic ultrasound can show whether fallopian tubes are enlarged or an abscess is present. Magnetic resonance imaging (MRI) also can establish a diagnosis of PID and detect other diseases that may be responsible for the symptoms. Treatment consists of antibiotic therapy, usually with at least two antibiotics effective against a wide range of bacteria. A woman’s sex partner(s) also should be treated to decrease the risk of reinfection, even if they have no symptoms. PID causes an estimated 15 to 30 percent of all cases of infertility every year and about half of all cases of ectopic pregnancy.
Gonorrhea

Gonorrhea (sometimes called “the clap” in street language) is one of the most common STIs in the United States.

Incidence

An estimated 700,000 new cases occur every year. As with chlamydia, gonorrhea rates are higher in women, particularly those between ages 15 and 24, than in men. Sexual contact, including oral sex, is the primary means of transmission.

Signs and Symptoms

Most men who have gonorrhea know it. Thick, yellow-white pus oozes from the penis and urination causes a burning sensation. These symptoms usually develop two to nine days after the sexual contact that infected them. Men have a good reason to seek help: It hurts too much not to.

In men, untreated gonorrhea can spread to the prostate gland, testicles, bladder, and kidneys. Among the serious complications are urinary obstruction and sterility caused by blockage of the vas deferens (the excretory duct of the testis).

Women also may experience discharge and burning on urination. However, as many as eight out of ten infected women have no symptoms.

Gonococcus, the bacterium that causes gonorrhea, can live in the vagina, cervix, and fallopian tubes for months, even years, and continue to infect the woman’s sexual partners. Approximately 5 percent of sexually active American women have positive gonorrhea cultures but are unaware that they are silent carriers.

If left untreated in men or women, gonorrhea spreads through the urinary-genital tract.

In women, the inflammation travels from the vagina and cervix, through the uterus, to the fallopian tubes and ovaries. The pain and fever are similar to those caused by stomach upset, so a woman may dismiss the symptoms. Eventually these symptoms diminish, even though the disease spreads to the entire pelvis. Pus may ooze from the fallopian tubes or ovaries into the peritoneum (the lining of the abdominal cavity), sometimes causing serious inflammation. However, this, too, can subside in a few weeks.

Gonorrhea, the leading cause of sterility in women, can cause PID. In pregnant women, gonorrhea becomes a threat to the newborn. It can infect the infant’s external genitals and can cause a serious form of conjunctivitis. As a preventive step, newborns may have penicillin dropped into their eyes at birth.

In both sexes, gonorrhea can develop into a serious, even fatal, bloodborne infection that can cause arthritis in the joints, attack the heart muscle and lining, cause meningitis, and attack the skin and other organs.

Diagnosis and Treatment

Although a blood test has been developed for detecting gonorrhea, the tried-and-true method of diagnosis is still a microscopic analysis of cultures from the male’s urethra, the female’s cervix, and the throat and anus of both sexes.

Because gonorrhea often occurs along with chlamydia, practitioners often prescribe an agent effective against both, such as ofloxacin. Fluoroquinolones are no longer advised for use in its treatment. The CDC now recommends a cephalosporin antibiotic plus azithromycin or doxycycline. Antibiotics taken for other reasons may not affect or cure gonorrhea, because of their dosage or type. And you can’t develop immunity to gonorrhea; within days of recovering from one case, you can catch another.

Nongonococcal Urethritis (NGU)

The term nongonococcal urethritis (NGU) refers to any inflammation of the urethra that is not caused by gonorrhea. NGU is the most common STI in men, accounting for 4 to 6 million visits to a physician every year. Three microorganisms—Chlamydia trachomatis, Ureaplasma urealyticum, and Mycoplasma genitalium—are the primary causes; the usual means of transmission is sexual intercourse. Other infectious agents, such as fungi or bacteria, allergic reactions to vaginal secretions, or irritation by soaps or contraceptive foams or gels also may lead to NGU.

In the United States, NGU is more common in men than gonococcal urethritis. The symptoms

A cloudy discharge is symptomatic of gonorrhea.
in men are similar to those of gonorrhea, including discharge from the penis (usually less than with gonorrhea) and mild burning during urination. Women frequently develop no symptoms or very mild itching, burning during urination, or discharge. Symptoms usually disappear after two or three weeks, but the infection may persist and cause cervicitis or PID in women and, in men, may spread to the prostate, epididymis, or both. Treatment usually consists of doxycycline or azithromycin and should be given to both sexual partners.

**Syphilis**

A corkscrew-shaped, spiral bacterium called *Treponema pallidum* causes syphilis. This frail microbe dies in seconds if dried or chilled but grows quickly in the warm, moist tissues of the body, particularly in the mucous membranes of the genital tract. Entering the body through any tiny break in the skin, the germ burrows its way into the bloodstream. Sexual contact, including oral sex or intercourse, is a primary means of transmission. Genital ulcers caused by syphilis may increase the risk of HIV infection, while individuals with HIV may be more likely to develop syphilis.

**Incidence**

The rate of syphilis in the United States declined by about 90 percent from 1990 through 2000, but has increased every year since, mostly in men. However, syphilis has also been rising in women for the last three years.  

**Signs and Symptoms**

Syphilis has clearly identifiable stages:

- **Primary syphilis.** The first sign of syphilis is a lesion, or chancre (pronounced “shanker”), an open lump or crater the size of a dime or smaller, teeming with bacteria. The incubation period before its appearance ranges from 10 to 90 days; three to four weeks is average. The chancre appears exactly where the bacteria entered the body: in the mouth, throat, vagina, rectum, or penis. Any contact with the chancre is likely to result in infection.

- **Secondary syphilis.** Anywhere from 1 to 12 months after the chancre’s appearance, secondary-stage symptoms may appear. Some people have no symptoms. Others develop a skin rash or a small, flat rash in moist regions on the skin; whitish patches on the mucous membranes of the mouth or throat; temporary baldness; low-grade fever; headache; swollen glands; or large, moist sores around the mouth and genitals. These sores are loaded with bacteria; contact with them, through kissing or intercourse, may transmit the infection. Symptoms may last for several days or several months. Even without treatment, symptoms eventually disappear as the syphilis microbes go into hiding.

- **Late and latent syphilis.** Although there are no signs or symptoms, no sores or rashes at this stage, the bacteria are invading various organs inside the body, including the heart and brain. For two to four years, there may be recurring infectious and highly contagious lesions of the skin or mucous membranes. However, syphilis loses its infectiousness as it progresses: After the first two years, a person rarely transmits syphilis through intercourse. After four years, even congenital syphilis is rarely transmitted. Until this stage of the disease, however, a pregnant woman can pass syphilis to her unborn child. If the fetus is infected in its fourth month or earlier, it may be disfigured or even die. If infected late in pregnancy, the child may show no signs of infection for months or years after birth, but may then become disabled with the symptoms of tertiary syphilis.

- **Tertiary syphilis.** Ten to 20 years after the beginning of the latent stage, the most serious symptoms of syphilis emerge, generally in the organs in which the bacteria settled during latency. Syphilis that has progressed to this stage has become increasingly rare. Victims of tertiary syphilis may die of a ruptured aorta or of other heart damage, or may have progressive brain or spinal cord damage, eventually leading to blindness, insanity, or paralysis. About a third of those who are not treated during the first three stages of syphilis enter the tertiary stage later in life.

**syphilis** A sexually transmitted infection caused by the bacterium *Treponema pallidum* and characterized by early sores, a latent period, and a final period of life-threatening symptoms, including brain damage and heart failure.
Diagnosis and Treatment

Health experts are urging screening with a blood test for syphilis for everyone who seeks treatment for an STI, especially adolescents; for everyone using illegal drugs; and for the partners of these two groups. They also recommend that anyone diagnosed with syphilis be screened for other STIs and be counseled about voluntary testing for HIV.

Penicillin is the drug of choice for treating primary, secondary, and latent syphilis. The earlier treatment begins, the more effective it is. Those allergic to penicillin may be treated with doxycycline, ceftriaxone, or erythromycin. An added danger of not getting treatment for syphilis is an increased risk of HIV transmission.

Pubic Lice and Scabies

These infections are sometimes, but not always, transmitted sexually. Pubic lice (or “crabs”) are usually found in the pubic hair, although they can migrate to any hairy areas of the body. Lice lay eggs called nits that attach to the base of the hair shaft. Irritation from the lice may produce intense itching. Scratching to relieve the itching can produce sores. Scabies is caused by a mite that burrows under the skin, where they lay eggs that hatch and undergo many changes in the course of their life cycle, producing great discomfort, including intense itching.

Lice and scabies are treated with applications of permethrin cream and lindane shampoo to all the areas of the body where there are concentrations of body hair (genitals, armpits, scalp). You must repeat treatment in seven days to kill any newly developed adults. You must also wash or dry-clean clothing and bedding.

Chancroid

A chancroid is a soft, painful sore or localized infection caused by the bacterium *Haemophilus ducreyi* and usually acquired through sexual contact. Half of the cases heal by themselves. In other cases, the infection may spread to the lymph glands near the chancroid, where large amounts of pus can accumulate and destroy much of the local tissue. The incidence of this STI, widely prevalent in Africa and tropical and semitropical regions, is rapidly increasing in the United States, with outbreaks in several states, including Louisiana, Texas, and New York. Chancroids, which may increase susceptibility to HIV infection, are believed to be a major factor in the heterosexual spread of HIV. This infection is treated with antibiotics (ceftiraxone, azithromycin, or erythromycin) and can be prevented by keeping the genitals clean and washing them with soap and water in case of possible exposure.

Trichomoniasis

An estimated 7.4 million new cases of this common curable STI appear each year in men and women. The cause is a single-celled protozoan parasite *Trichomonas vaginalis*, transmitted by vaginal intercourse or vulva-to-vulva contact with an infected partner. Women can acquire this disease from male or female partners; men usually contract it only from infected women.

Most men have no signs or symptoms; some experience irritation inside the penis, mild discharge, or slight burning on urination or ejaculation. Some women develop a frothy, yellow-green vaginal discharge with a strong odor and may experience discomfort during intercourse and urination as well as genital itching and irritation. This inflammation may increase a woman’s susceptibility to HIV if she is exposed to the virus.
Diagnosis is based on a physical examination and a laboratory test. Treatment consists of a single dose of oral medication, either metronidazole or tinidazole. If untreated, an infected man, even if he has never had symptoms or if his symptoms have gone away, can continue to infect or reinfect partners.

**HIV and AIDS**

A few years ago, no one knew about human immunodeficiency virus (HIV). No one had ever heard of acquired immune deficiency syndrome (AIDS). Once seen as an epidemic affecting primarily gay men and injection drug users, AIDS has taken on a very different form. Experts no longer think of AIDS as a single global epidemic. Instead, many regions and countries are experiencing diverse epidemics, some of which remain in their early stages. Sub-Saharan Africa has been the most affected region as measured by HIV/AIDS prevalence rates, followed by the Caribbean. Infection rates continue to rise in Eastern Europe and Asia.

**Incidence**

According to the most recent statistics, 33.4 million people are living with HIV/AIDS worldwide. The global HIV/AIDS prevalence rate (the percent of people living with the disease) has leveled off, although the number of people living with the disease continues to increase. An estimated 2.7 million people become newly infected with HIV every year; about 2 million people die of AIDS-related causes. Women comprise half of adults estimated to be living with HIV/AIDS worldwide. Young people under the age of 25 are estimated to account for more than half of all new HIV infections worldwide.\(^2\) However, the incidence of HIV/AIDS in individuals over age 50 is rising.\(^32\)

About 1.1 million people in the United States are living with HIV/AIDS, a number that has grown because those with the disease are living longer. Someone in this country is infected every nine and one-half minutes, with about 56,300 new cases every year. Since the beginning of the epidemic, 617,025 men, women, and children have died of AIDS.\(^33\) Among those at highest risk are:

- **Gay and bisexual men.** Although HIV infection rates have declined among gay and bisexual men, they account for an estimated 53 percent of new HIV infections and constitute the only group for which new infections are on the rise. Younger gay and bisexual men and those of color are at particularly high risk.\(^34\)
- **Black Americans.** Although black Americans represent only 13.5 percent of the population, they account for 50.3 percent of new HIV infections. The rate of HIV diagnosis among black men is eight times that of whites, and the rate for black women is 19 times that of whites.\(^35\)

Two percent of black Americans are HIV positive, higher than any other group. The AIDS diagnosis rate for blacks is more than nine times that for whites. Blacks also have had the highest age-adjusted death rate due to HIV disease throughout most of the epidemic.\(^36\) The reasons for this discrepancy are complex and include a higher rate of other STDs in black communities, disparities in health care, and poverty.

- **Women.** In 1985 women represented 8 percent of AIDS diagnoses; now they account for 25 percent. According to CDC estimates, almost 280,000 women in the United States are living with HIV or AIDS. Black women make up the largest share of women diagnosed with AIDS (64 percent), compared with 15 percent for whites and 18 percent for Latinos.

Women are most likely to be infected through heterosexual sex, followed by injection drug use. Mother-to-child transmission of HIV has decreased dramatically because of the use of medicines that significantly reduce the risk of transmission from a woman to her baby.\(^37\)

- **Young adults.** Teens and young adults under the age of 30 continue to be at risk. Those between ages 13 and 20 account for 34 percent of new HIV infections, the largest share of any age group. Most are infected sexually.

**Health in Action**

**Telling a Partner You Have an STI**

Even though the conversation can be awkward and embarrassing, you need to talk honestly about any STI that you may have been exposed to or contracted. What you don’t say can be hazardous to your partner’s health. Here are some guidelines:

- **Talk before you become intimate.** A good way to start is simply by saying, “There is something we need to talk over first.”

- **Be honest.** Don’t downplay any potential risks.

- **Don’t blame.** Even if you suspect that your partner was the source of your infection, focus on the need for medical attention.

- **Be sensitive to your partner’s feelings.** Anger and resentment are common reactions when someone feels at risk. Try to listen without becoming defensive.

- **Seek medical attention.** Do not engage in sexual intimacies until you obtain a doctor’s assurance that you are no longer contagious.

Even if you are not sexually active or have never had an STI, imagine yourself in this situation. What would be your biggest concern if you were the one with the STI? What would be your biggest concern if you were his or her partner? What do you think is the best possible way to deal with such circumstances? Record your thoughts in your online journal.

Reducing the Risk of HIV Transmission

HIV/AIDS can be so frightening that some people have exaggerated its dangers, whereas others underestimate them. The fact is that although no one is immune to HIV, you can reduce the risk if you abstain from sexual activity or remain in a monogamous relationship with an uninfected partner, and do not inject drugs.

If you’re not in a long-term monogamous relationship with a partner you’re sure is safe, and you’re not willing to abstain from sex, there are things you can do to lower your risk of HIV infection. Remember that the risk of HIV transmission depends on sexual behavior, not sexual orientation. Among young men, the prevalence and frequency of sexual risk behaviors are similar regardless of sexual orientation, ethnicity, or age. Homosexual, heterosexual, and bisexual individuals all need to know about the kinds of sexual activity that increase their risk.

**Sexual Transmission** Here’s what you should know about sexual transmission of HIV:

- Casual contact does not spread HIV infection. You cannot get HIV infection from drinking from a water fountain, contact with a toilet seat, or touching an infected person.
- Compared to other viruses, HIV is extremely difficult to get.
- HIV can live in blood, semen, vaginal fluids, and breast milk.
- Many chemicals, including household bleach, alcohol, and hydrogen peroxide, can inactivate HIV.
- In studies of family members sharing dishes, food, clothing, and frequent hugs with people with HIV infection or AIDS, those who have contracted the virus have shared razor blades or toothbrushes or had other means of blood contact.
- You cannot tell visually whether a potential sexual partner has HIV. A blood test is needed to detect the antibodies that the body produces to fight HIV, thus indicating infection. As noted in Chapter 9, circumcision greatly reduces the risk for HIV infection.
- HIV can be spread in semen and vaginal fluids during a single instance of anal, vaginal, or oral sexual contact between heterosexuals, homosexuals, or bisexuals. The risk increases with the number of sexual encounters with an infected partner.
- Teenage girls may be particularly vulnerable to HIV infection because the immature cervix is easily infected.
- Anal intercourse is an extremely high-risk behavior because HIV can enter the bloodstream through tiny breaks in the lining of the rectum. HIV transmission is much more likely to occur during unprotected anal intercourse than vaginal intercourse.
- Other behaviors that increase the risk of HIV infection include having multiple sexual partners, engaging in sex without condoms or virus-killing spermicides, having sexual contact with persons known to be at high risk (for example, prostitutes or injection drug users), and sharing injection equipment for drugs.
- Individuals are at greater risk if they have an active sexual infection. Sexually transmitted infections, such as herpes, gonorrhea, and syphilis, facilitate transmission of HIV during vaginal or anal intercourse.
- No cases of HIV transmission by deep (French) kissing have been reported, but it could happen. Studies have found blood in the saliva of healthy people after kissing; other lab studies have found HIV in saliva. Social (dry) kissing is safe.
- Oral sex can lead to HIV transmission. The virus in any semen that enters the mouth could make its way into the bloodstream through tiny nicks or sores in the mouth. A man’s risk in performing oral sex on a woman is smaller because an infected woman’s genital fluids have much lower concentrations of HIV than does semen.
- HIV infection is not widespread among lesbians, although there have been documented cases of possible female-to-female HIV transmission. However, in each instance, one partner had had sex with a bisexual man or male injection drug user or had injected drugs herself.

**Nonsexual Transmission** Efforts to prevent nonsexual forms of HIV transmission have been very effective. Screening the blood supply has reduced the rate of transfusion-associated HIV transmission by 99.9 percent. Treatment
with antiretroviral drugs during pregnancy and birth has reduced transmission to newborns by about 90 percent in optimal conditions. Among drug users in some settings, programs that combine addiction treatment and needle exchange reduced the incidence of HIV infection by 30 percent.

**Biological Methods of Preventing HIV Infection**

Behavioral methods, such as safer sex practices, remain the primary means of preventing transmission of HIV. However, adding biological approaches may provide greater protection. (See Health on a Budget.)

In initial trials of “pre-exposure prophylaxis” (PrEP), a daily pill called Truvada, which combines two anti-HIV drugs, proved safe and effective in significantly reducing the risk of HIV transmission in high-risk men. The volunteers received condoms and intensive counseling on safe sex practices. Researchers also are studying the use of antiretroviral vaginal gels and topical creams.

**Recognizing and Treating HIV/AIDS**

HIV infection refers to a spectrum of health problems that results from immunologic abnormalities caused by the virus when it enters the bloodstream. In theory, the body may be able to resist infection by HIV. In reality, in almost all cases, HIV destroys the cell-mediated immune system, particularly the CD4+ T-lymphocytes (also called T4 helper cells). The result is greatly increased susceptibility to various cancers and opportunistic infections (infections that take hold because of the reduced effectiveness of the immune system).

HIV triggers a state of all-out war within the immune system. Almost immediately following infection with HIV, the immune system responds aggressively by manufacturing enormous numbers of CD4+ cells. It eventually is overwhelmed, however, as the viral particles continue to replicate, or multiply. The intense war between HIV and the immune system indicates that the virus itself, not a breakdown in the immune system, is responsible for disease progression.

Shortly after becoming infected with HIV, individuals may experience a few days of flu-like symptoms, which most ignore or attribute to other viruses. Some people develop a more severe mononucleosis-type syndrome. After this stage, individuals may not develop any signs or symptoms of disease for a period ranging from weeks to more than 12 years.

HIV symptoms, which tend to increase in severity and number the longer the virus is in the body, may include any of the following:

- Swollen lymph nodes.
- Fever, chills, and night sweats.
- Diarrhea.
- Weight loss.
- Coughing and shortness of breath.
- Persistent tiredness.
- Skin sores.
- Blurred vision and headaches.
- Development of other infections, such as certain kinds of pneumonia.

HIV infection is associated with a variety of HIV-related diseases, including different cancers and dangerous infections including tuberculosis. HIV-infected individuals may develop persistent...
generalized lymphadenopathy, enlargement of the lymph nodes at two or more different sites in the body. This condition typically persists for more than three months without any other illness to explain its occurrence. Diminished mental function may appear before other symptoms. Tests conducted on infected but apparently healthy men have revealed impaired coordination, problems in thinking, or abnormal brain scans. Psychological problems, including depression, anxiety, and stress, occur “in epidemic proportions” in individuals with HIV, according to recent research, and can affect their behavior (such as taking steps to prevent transmitting the virus) and treatment outcome. HIV also increases the risk of stroke and of bone fractures.41

**HIV Testing** One in five Americans infected with HIV doesn’t know it. Anyone receiving routine medical care and testing can be screened for HIV without giving specific informed consent. The goal is to identify the estimated 250,000 Americans who have undiagnosed HIV.

All HIV tests measure antibodies, cells produced by the body to fight HIV infection. A negative test indicates no exposure to HIV. It can take three to six months for the body to produce the telltale antibodies, however, so a negative result may not be accurate, depending on the timing of the test.

HIV testing can be either confidential or anonymous. In confidential testing, a person’s name is recorded along with the test results, which are made available to medical personnel and in 32 states, the state health department. In anonymous testing, no name is associated with the test results. Anonymous testing is available in 39 states.

The only home HIV test approved by the FDA, Home Access, is available in drug stores or online for $40 to $50. An individual draws a blood sample by pricking a finger and sends it to a laboratory along with a personal identification number. Results are given over the phone by a trained counselor, usually within several days.

Newly developed blood tests can determine how recently a person was infected with HIV and distinguish between long-standing infections and those contracted within the previous four to six months.

**Diagnosing AIDS** A diagnosis of AIDS applies to anyone with HIV whose immune system is severely impaired, as indicated by a CD4+ count of less than 200 cells per cubic millimeter of blood, compared to normal CD4+ cell counts in healthy people not infected with HIV of 800 to 1,200 per cubic millimeter of blood. In addition, AIDS is diagnosed in persons with HIV infection who experience recurrent pneumonia, invasive cervical cancer, or pulmonary tuberculosis.

People with AIDS also may experience persistent fever, diarrhea that persists for more than one month, or involuntary weight loss of more than 10 percent of normal body weight. Neurological disease—including dementia (confusion and impaired thinking) and other problems with thinking, speaking, movement, or sensation—may occur. Secondary infectious diseases that may develop in people with AIDS include *Pneumocystis carinii* pneumonia, tuberculosis, or oral candidiasis (thrush). Secondary cancers associated with HIV infection include Kaposi’s sarcoma and cancer of the cervix.

**Treatments** New forms of therapy have been remarkably effective in boosting levels of protective T cells and reducing viral load—the amount of HIV in the bloodstream. Starting HIV treatment early, before a patient’s immune system is badly weakened, can dramatically improve survival. People with high viral loads are more likely to progress rapidly to AIDS than people with low levels of the virus.

The current “gold-standard” approach to combating HIV is known as ART (Antiretroviral Therapy), which dramatically reduces viral load even though it does not eradicate the virus. This complex regimen uses one of 250 different combinations of three or more antiretroviral drugs, often available in a single tablet. Treatment begins much earlier than in the past, even before moderate immune suppression. This benefits the individual patient and helps prevent HIV transmission to a sexual partner.

Antiretroviral drugs are not available everywhere they are needed. In low- and middle-income countries, only 42 percent of people with AIDS are receiving treatment. Some countries have implemented successful HIV prevention interventions among high-risk populations and scaled up services to prevent mother-to-child transmission. However, others have not, and funding for such services remains inadequate.
Protecting Your Sexual Health

As with other aspects of your well-being, your sexual health depends on your choices and behaviors. Here are some basic guidelines:

___ Talk first. Get to know your partner. Before having sex, establish a committed relationship that allows trust and open communication. You should be able to discuss past sexual histories and any previous STIs or IV drug use. You should not feel coerced or forced into having sex.

___ Stay sober. Alcohol and drugs impair your judgment, make it harder to communicate clearly, and can lead to forgetting or failing to use condoms properly.

___ Be honest. If you have an STI, like HPV or herpes, advise any prospective sexual partner. Allow him or her to decide what to do. If you mutually agree on engaging in sexual activity, use latex condoms and other protective measures.

___ Don’t feel you have to have sex for fear of hurting someone’s feelings or fear of being the “only one” who isn’t doing it. If you don’t want to have sex, be honest, discuss the reasons behind your decision with your partner, and stay true to you.

___ Respect everyone’s right to make his or her own personal decision—including yours. There is no perfect point in a relationship where sex has to happen. If your partner tells you that he or she is not ready to have sex, respect this decision, discuss the reasons behind it, and be supportive.

___ Be prepared for a sex emergency. Consider carrying two condoms with you just in case one breaks or tears. Both men and women are equally responsible for preventing STIs, and both should carry condoms.

___ Abstinence doesn’t mean less affection. Practicing abstinence—the most effective way to protect against STIs—doesn’t mean you can’t have an intimate relationship with someone. It just means you don’t have vaginal or anal intercourse or oral sex.

___ Make your sexual health a priority. Whether you are having sex or not, both men and women need regular check-ups to make sure they are sexually healthy.

Assessing Your STI Risk

This Self Survey looks at your risk of acquiring or transmitting any sexually transmitted infection.

**STI Quiz**

1. **True** or **False**: A person can have an STI and not know it.
2. **True** or **False**: It is normal for women to have some vaginal discharge.
3. **True** or **False**: Once you have had an STI and have been cured, you can’t get it again.
4. **True** or **False**: HIV is mainly present in semen, blood, vaginal secretions, and breast milk.
5. **True** or **False**: Chlamydia and gonorrhea can cause pelvic inflammatory disease.
6. **True** or **False**: A pregnant woman who has an STI can pass the disease on to her baby.
7. **True** or **False**: Most STIs go away without treatment, if people wait long enough.
8. **True** or **False**: STIs that aren’t cured early can cause sterility.
9. **True** or **False**: Birth control pills offer excellent protection from STIs.
10. **True** or **False**: Condoms can help prevent the spread of STIs.
11. **True** or **False**: If you know your partner, you can’t get an STI.
12. **True** or **False**: Chlamydia is the most common bacterial STI.
13. **True** or **False**: A sexually active woman should get an annual Pap test from her doctor.

**Answers**

1. **True** Some of the most common symptoms of an STI infection include abnormal discharge, painful urination, burning, and itching or tingling in the genital area, but it is important to remember that many women and men who have an STI often do not experience any symptoms at all. Chlamydia, for example, often has no symptoms.

2. **True** Normal vaginal discharge has several purposes: cleaning and moistening the vagina and helping to prevent and fight infections. Although it’s normal for the color, texture, and amount of vaginal fluids to vary throughout a woman’s menstrual cycle, some changes in discharge may indicate a problem.

   If you think you may have a problem, you should see a doctor as soon as possible. First, though, it helps to learn some of the differences between what is normal and abnormal vaginal discharge for you.

3. **False** Having an STI and being cured from it does not mean that your body now has a built-in immunity to the bacteria that causes the infection. You must protect yourself from becoming infected again by using a condom. Remember, it is your body!

4. **True** Although small traces of HIV can be found in tears, saliva, urine, and perspiration, extensive studies have shown that there is not enough of the virus or the virus is not strong enough to be transmitted. Only blood, semen, vaginal secretions, and breast milk have been proven to transmit the HIV virus and hepatitis B. HIV cannot be passed on by casual contact.

5. **True** Many different organisms can cause PID, but most cases are associated with gonorrhea and genital chlamydial infections, two very common STIs. Scientists have found that bacteria normally present in small numbers in the vagina and cervix may play a role.

6. **True** STIs can be passed from a pregnant woman to the baby before, during, or after the baby’s birth. Some STIs (like syphilis) cross the placenta and infect the baby while it is in the uterus (womb). Other STIs (like gonorrhea, chlamydia, hepatitis B, and genital herpes) can be transmitted from the mother to the baby during delivery as the baby passes through the birth canal. HIV can cross the placenta during pregnancy, infect the baby during the birth process, and unlike most other STIs, can infect the baby through breast-feeding.

7. **False** Even if symptoms appear to go away, the infected person will still have the infection and is able to pass the infection on to others until he or she gets treatment. STIs that aren’t cured early can cause sterility.

8. **True** If the fallopian tubes are blocked at one or both ends, the egg can’t travel through the tubes into the uterus. Blocked tubes may result from pelvic inflammatory disease, which is often caused by untreated STIs.

9. **False** The birth control pill does not protect against sexually transmitted infections. For those having sex, condoms must always be used along with birth control pills to protect against STIs. Abstinence (the decision to not have sex) is the only method that always prevents pregnancy and sexually transmitted infections.

10. **True** Most condoms are made of latex. Those made of lambskin may offer less protection against some sexually transmitted infections, including HIV, so use of latex condoms is recommended. For people who may have an allergic skin reaction to latex, both male and female condoms made of polyurethane are available.

When properly used, latex and plastic condoms are effective against most STIs. Condoms do not protect against infections spread from sores on the skin not covered by a condom (such as the base of the penis or scrotum).

11. **False** As stated in question number 1, a person can have an STI and not know it. If they can’t tell, how can you?

12. **True** The U.S. Centers for Disease Control and Prevention estimates that more than 4 million new cases of chlamydia occur each year. The highest rates of chlamydial infection are in 15- to 19-year-old adolescents regardless of demographics or location.

13. **True** The Pap test is a way to find cell changes on the cervix. Abnormal cells may lead to cancer, so having a Pap test can find and treat them early, before they have time to progress to cancer.

Although Pap tests do not test for STIs, some STIs such as HPV (human papillomavirus infection) can cause abnormal Pap test results. Certain types of HPV are linked to cancer in both women and men.

*Source: Material taken from The Bacchus Network™ Website, smartersex.org.*
Making Change Happen

The Sexiness of Safer Sex

Protecting yourself and your partner doesn’t take anything away from the quality of your sex life. In fact, it makes it better. Sex involves more than two bodies; it involves, engages, and delights two people. Protection doesn’t mean less affection. You can still have an intimate relationship with someone, and you can still enjoy the pleasures of being together. Safer sex is still sexy—and certainly far sexier than nagging worries about infections that could jeopardize your future sex life. If you’re sexually active, read through “The Sexiness of Safer Sex” in Labs for IPC. Even if you’re not, read through this preview.

Get Real

In this stage you rate your sexual safety skills by answering 12 questions, including the following:

• How well do you know your partner(s)? Did you share each other’s sexual histories before having sex? Is your partner always open about everything with you? Does your partner keep secrets from you?
• How do you protect yourself and a partner from STIs and, if you are heterosexual, pregnancy?
• Do you use this form of protection every time you have sex?

You also read through a list of sexual behaviors, and check any you’ve engage in with someone whose sexual history and HIV status you did not know. The list includes safe behaviors, such as computer or phone sex, possibly safe ones such as intercourse with a condom, and unsafe ones, such as intercourse without a condom. On the basis of your answers, you rate your sexual safety skills on a scale from 1 (no risk) to 10 (highest risk). You also get checked for STIs, even if you have no symptoms.

Get Ready

To prepare, you inform yourself by reading this chapter and going to authoritative websites such as http://www.ashastd.org/ (American Social Health Association).

Get Going

You do one of six exercises in this stage every week. Here is an example:

• Condom Sense. Talk with your partner about using a condom before having sex. Don’t let embarrassment put your health at risk. Visualize the conversation, and practice the following rebuttals:
  
  Don’t you trust me? Trust isn’t the point. People can have an STI and not realize it. OR: I trust you but I don’t know your last partner. How can I trust that person?

  Condoms interrupt us just when thing are getting hot.

  I don’t have a condom with me.

  But I love you. Then you’ll help us to protect ourselves.

  Just this once. Once is all it takes . . .

Lock It In

Make your sexual health a priority. Bring up questions related to STIs with your doctor. If you’re a woman under age 26, discuss the pros and cons of getting an HPV vaccination. And be prepared. If you are sexually active and not in an exclusive relationship with a healthy partner, carry condoms with you . . .
Review Questions

1. Chlamydial infections  
   a. are caused by a virus.  
   b. can cause eye infections in men.  
   c. usually display no symptoms in women.  
   d. are more common in older women.  

2. Which statement is true?  
   a. Gonorrhea is mostly symptomless in men.  
   b. Secondary syphilis usually occurs 10 to 20 years after the latent stage.  
   c. Pubic lice can be killed with regular shampoo.  
   d. African Americans account for a disproportionate share of new AIDS diagnoses.  

3. Which of the following statements about HIV transmission is true?  
   a. Individuals are not at risk for HIV if they are being treated for chlamydia or gonorrhea.  
   b. HIV can be transmitted between lesbians.  
   c. Heterosexual men who do not practice safe sex are at less risk for contracting HIV than homosexual men who do practice safe sex.  
   d. HIV cannot be spread in a single instance of sexual intercourse.  

4. A person with AIDS  
   a. has a low viral load and a high number of T4 helper cells.  
   b. can no longer pass HIV to a sexual partner.  
   c. may suffer from secondary infectious diseases and cancers.  
   d. will not respond to treatment.  

5. Sexually transmitted infections  
   a. are the major cause of preventable sterility in the United States.  
   b. are declining in incidence on college campuses.  
   c. have declined in incidence in developing nations due to improving health standards.  
   d. do not increase the risk of being infected with HIV.  

6. Viral agents cause all of the following STIs except  
   a. herpes.  
   b. genital warts.  
   c. HIV.  
   d. chlamydia.  

7. Jake is sexually active but doesn’t want to use a condom. His other choices to protect himself against STIs include all of these except  
   a. abstinence.  
   b. a sexual relationship with a longtime friend.  
   c. a sexual relationship with one STI-free partner.  
   d. masturbation only.  

8. Which of these activities cannot transmit an STI?  
   a. having oral sex  
   b. hugging  
   c. sharing a needle with a fellow athlete using steroids  
   d. sharing a razor  

9. Which statement about HPV infection is false?  
   a. HPV cannot be transmitted through oral sex.  
   b. HPV increases a woman’s risk of developing cervical cancer.  
   c. HPV causes genital warts.  
   d. HPV increases a man’s risk of cancer of the penis.  

10. The herpes simplex virus HSV-2  
    a. cannot be transmitted through oral sex.  
    b. cannot be transmitted if a condom is used.  
    c. can be transmitted even when the infected person shows no symptoms.  
    d. can be permanently killed with antiviral medications.  

Answers to these questions can be found on page 672.

Critical Thinking

1. Your friend Shayla recently broke up after a five-year relationship with her first boyfriend. How would you counsel Shayla on reentering the dating scene and becoming intimate with a new partner?  

2. Tad has told his girlfriend, Kylie, that he has never taken any sexual risks. But when she suggested that they get tested for STIs, he became furious and refused. Now Kylie says she doesn’t know what to believe. Could Tad be telling the truth, or is he hiding something? If he is telling the truth, why is Tad so upset? Kylie doesn’t want to take any risks, but she doesn’t want to lose him either. What would you advise her to say or do? What would you advise Tad to say or do?  

3. Have you ever dated someone with an STI? If so, when did you find out about it? How did you feel? Did it affect your sex life? In what way?  

4. Any time a person has a blood test, an HIV screening can be performed without asking permission. Do you see this as a violation of privacy or as a good public health practice? Explain.
Media Menu

Visit www.cengagebrain.com to access course materials and companion resources for this text that will:

- Help you evaluate your knowledge of the material.
- Allow you to prepare for exams with interactive quizzing.
- Use the CengageNOW product to develop a Personalized Learning Plan targeting resources that address areas you should study.

Internet Connections

www.cdc.gov/std
www.cdc.gov/hiv

These sites at the CDC feature current information, fact sheets, treatment guides, surveillance, and statistics on sexually transmitted infections and HIV/AIDS.

http://www3.niaid.nih.gov/research/topics

This site, which is part of the National Institutes of Health, features research on STIs, including basic and clinical research and activities related to vaccine development.

http://hivinsite.ucsf.edu

This site, sponsored by the University of California San Francisco School of Medicine, provides statistics, education, prevention, and new developments related to HIV/AIDS.

Key Terms

The terms listed are used on the page indicated. Definitions of the terms are in the Glossary at the end of the book.

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Making This Chapter Work for You

This page contains questions for this chapter only

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1. c; 2. d; 3. b; 4. c; 5. a; 6. d; 7. b; 8. b; 9. a; 10. c
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4. Ibid.


8. “STD Treatment: Time to Get on Board with Expedited Partner Therapy.” Contraceptive Technology Update, April 1, 2011.


29. Ibid.


36. Ibid.


