

Sexually Transmitted Infections

KeyTERMS

bacterial vaginosis gonorrhea pelvic inflammatory disease (PID) sexually transmitted infection (STI) syphilis trichomoniasis vulvovaginal candidiasis

LearningOBJECTIVES

After studying the chapter content, the student should be able to accomplish the following:

- 1. Define the key terms.
- 2. Describe the spread and control of sexually transmitted infections.
- 3. Identify risk factors and outline appropriate client education needed in common sexually transmitted infections.
- 4. Discuss how contraceptives can play a role in the prevention of sexually transmitted infections.
- 5. Discuss the physiologic and psychological aspects of sexually transmitted infections.
- 6. Delineate the nursing management needed for women with sexually transmitted infections.

MOW

Unconditional self-acceptance is the core to reducing risky

behavior and fostering peace of mind.

Jexually transmitted infec-

tions (STIs) are infections of the reproductive tract caused by microorganisms transmitted through vaginal, anal, or oral sexual intercourse (CDC, 2002). STIs pose a serious threat not only to women's sexual health but also to the general health and well-being of millions of people worldwide. STIs constitute an epidemic of tremendous magnitude. An estimated 65 million people live with an incurable STI, and another 15 million are infected each year (CDC, 2004).

STIs are biologically sexist, presenting greater risk and causing more complications among women than among men. STIs may contribute to cervical cancer, low birthweight, fetal wastage (abortions and death) and vertical transmission (maternal-to-fetal transmission while in utero), infertility, ectopic pregnancy, chronic pelvic pain, and death. STIs know no class, racial, ethnic, or social barriers—all individuals are vulnerable if exposed to the infectious organism. The problem of STIs has still not been tackled adequately on a global scale and until this is done, numbers worldwide will continue to increase.

Biological and behavioral factors place teenagers at high risk. An estimated two thirds of all infections occur among persons under the age of 25 (Burstein et al., 2003). The incidence of STIs continues to rise in the United States.

Education about safer sex practices—and the resulting increase in the use of condoms—can play a vital role in reducing STI rates all over the world. Clearly, knowledge and prevention are the best defenses against STIs. The prevention and control of STIs is based on the following concepts (CDC, 2002):

- 1. Education and counseling of persons at risk about safer sexual behavior
- 2. Identification of asymptomatically infected individuals and of symptomatic individuals unlikely to seek diagnosis and treatment
- 3. Effective diagnosis and treatment of infected individuals
- 4. Evaluation, treatment, and counseling of sex partners of people who are infected with an STI
- 5. Preexposure vaccination of people at risk for vaccinepreventable STIs

Nurses play an integral role in identifying and preventing STIs. They have a unique opportunity to educate the public about this serious public health issue by communicating the methods of transmission, symptoms associated with each condition, tracking the updated CDC treatment guidelines, and offering clients strategic preventive measures to reduce the spread of STIs. Discussion of STIs can be categorized in many fashions. We will use the CDC framework, which groups STIs according to the major symptom manifested (Box 5-1).

Infections Characterized by Vaginal Discharge

Vaginitis is a generic term that means inflammation and infection of the vagina. There can be hundreds of causes for vaginitis, but more often then not the cause is infection by one of three organisms:

- · Candida, a fungus
- Gardnerella, a bacterium
- Trichomonas, a protozoan

The complex balance of microbiological organisms in the vagina is recognized as a key element in the maintenance of health. Subtle shifts in the vaginal environment may allow organisms with pathologic potential to proliferate, causing infectious symptoms.

Vulvovaginal Candidiasis

Vulvovaginal candidiasis is one of the most common causes of vaginal discharge. It is also referred to as yeast, monilia, and a fungal infection. It is not considered an

BOX 5-1

CDC CLASSIFICATIONS OF SEXUALLY TRANSMITTED INFECTIONS

- · Infections characterized by vaginal discharge
- Vulvovaginal candidiasis
- Trichomoniasis
- Bacterial vaginosis
- Infections characterized by cervicitis
- Chlamydia
- ° Gonorrhea
- Infections characterized by genital ulcers
- Genital herpes simplex
- Syphilis
- Pelvic inflammatory disease (PID)
- Human immunodeficiency virus (HIV)
- Human papillomavirus infection (HPV)
- Vaccine-preventable STIs
- Hepatitis A
- Hepatitis B
- Ectoparasitic infections
- Pediculosis pubis
- Scabies

STI because *Candida* is a normal constituent in the vagina and becomes pathologic only when the vaginal environment becomes altered. An estimated 75% of women will have at least one episode of vulvovaginal candidiasis, and 40% to 50% will have two or more episodes in their lifetime (CDC, 2002).

Clinical Manifestations

Typical symptoms, which can worsen just before menses, include:

- Pruritus
- Vaginal discharge (thick, white, curd-like)
- Vaginal soreness
- Vulvar burning
- Erythema in the vulvovaginal area
- Dyspareunia
- External dysuria

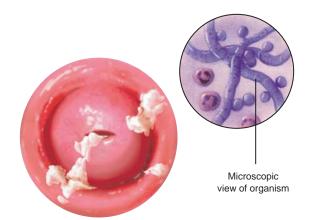
Predisposing factors for candidiasis include:

- Pregnancy
- Use of oral contraceptives with a high estrogen content
- Use of broad-spectrum antibiotics
- Diabetes mellitus
- Use of steroid and immunosuppressive drugs
- HIV infection
- Wearing tight, restrictive clothes and nylon underpants
- Trauma to vaginal mucosa from chemical irritants or douching

Figure 5-1 shows the typical appearance of vulvo-vaginal candidiasis.

Diagnosis

The diagnosis of candidiasis is based on the history of symptoms and a pelvic examination. The speculum examination will reveal white plaques on the vaginal walls. The definitive diagnosis is made by a wet smear, which reveals the filamentous hyphae and spores characteristic of a fungus when viewed under a microscope.



• Figure 5-1 Vulvovaginal candidiasis. (Source: The Anatomical Chart Company. [2002]. *Atlas of pathophysiology*. Springhouse, PA: Springhouse.)

Treatment

Treatment of candidiasis includes one of the following medications:

- Miconazole cream or suppository
- Clotrimazole tablet
- Terconazole cream or suppository
- Fluconazole oral tablet (CDC, 2002, p. 46)

Most of the above medications are used intravaginally in the form of a cream, tablet, or suppositories used for 3 to 7 days. If fluconazole (Diflucan) is prescribed, a 160-mg oral tablet is taken as a single dose.

Topical azole preparations are effective in the treatment of vulvovaginal candidiasis, relieving symptoms and producing negative cultures in 80% to 90% of women who complete therapy (CDC, 2002). If vulvovaginal candidiasis is not treated effectively during pregnancy, the newborn can develop an oral infection known as thrush during the birth process; that infection must be treated with a local azole preparation after birth.

Preventive measures for women with frequent vulvovaginal candidiasis infections include:

- Reducing the dietary intake of simple sugars and soda
- Wearing white, 100% cotton underpants
- Avoiding wearing tight pants
- Showering rather than taking tub baths
- Washing with a mild, unscented soap and drying the genitals gently
- Avoiding the use of bubble baths or scented bath products
- Washing underwear in unscented laundry detergent and hot water
- Drying underwear in a hot dryer to kill the yeast that cling to the fabric
- Removing wet bathing suits promptly
- Practicing good body hygiene
- Avoiding vaginal sprays/deodorants
- Avoiding wearing pantyhose (or cut out the crotch to allow air circulation)
- Using white, unscented toilet paper and wiping from front to back
- Avoiding douching (which washes away protective vaginal mucus)
- Avoiding the use of superabsorbent tampons (use pads instead)

Trichomoniasis

Trichomoniasis is another common vaginal infection that causes a discharge. The woman may be markedly symptomatic or asymptomatic. Men are asymptomatic carriers. Although this infection is localized, there is increasing evidence of preterm birth and postpartum endometritis in women with this vaginitis (CDC, 2002). *Trichomonas vaginalis* is an ovoid shaped, single-cell protozoan parasite that can be observed under the microscope making a jerky swaying motion.

Clinical Manifestations

Typical symptoms include:

- A heavy yellow/green or gray frothy or bubbly discharge
- Vaginal pruritus and vulvar soreness
- Dyspareunia
- Dysuria
- Colpitis macularis ("strawberry" look on cervix)

Figure 5-2 shows the typical appearance of trichomoniasis.

Diagnosis

The diagnosis is confirmed when a motile flagellated trichomonad is visualized under the microscope.

Treatment

A single dose of oral metronidazole for both partners is a common treatment for this infection. Sex partners of women with trichomoniasis should be treated. Clients should be instructed to avoid sex until they and their sex partners are cured (i.e., when therapy has been completed and both partners are symptom-free) (CDC, 2002). People taking metronidazole should be counseled to avoid alcohol because mixing the two causes severe nausea and vomiting (Sloane, 2002).

Bacterial Vaginosis

A third common infection of the vagina is **bacterial vaginosis**, caused by the gram-negative bacillus *Gardnerella vaginalis*. It is the most prevalent cause of vaginal discharge or malodor, but up to 50% of women are asymptomatic. Bacterial vaginosis is a sexually associated infection characterized by alterations in vaginal flora in which *Lactobacilli* in the vagina are replaced with high concentrations of anaerobic bacteria. The cause of the microbial alteration is not fully understood but is associated with having multiple sex partners, douching, and lack of vaginal lactobacilli (CDC, 2002). Research suggests that bacterial vaginosis is associated with preterm labor, chorioamnionitis, postpartum endometritis, and pelvic inflammatory disease (CDC, 2002).

Clinical Manifestations

The primary symptoms of bacterial vaginosis are a thin, white homogeneous vaginal discharge and a characteristic "stale fish" odor. Figure 5-3 shows the typical appearance of bacterial vaginosis.

Diagnosis

To diagnose BV, three of the four criteria must be met:

- Thin, white homogeneous vaginal discharge
- pH > 4.5
- Positive "whiff test" (secretion is mixed with a drop of 10% potassium hydroxide on a slide, producing a characteristic stale fishy odor)
- The presence of clue cells on wet-mount examination (CDC, 2002)

Treatment

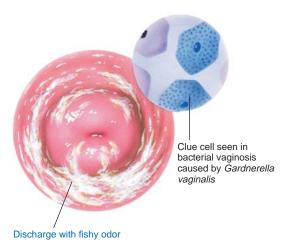
Treatment for bacterial vaginosis includes oral metronidazole or clindamycin cream. Treatment of the male partner has not been beneficial in preventing recurrence (CDC, 2002, p. 43).

Nursing Management

The nurse's role is one of primary prevention and education to limit recurrences of these infections. Primary prevention begins with changing the sexual behaviors that place women at risk for infection. In addition to assessing women for the common signs and symptoms and risk



 Figure 5-2 Trichomoniasis. (Source The Anatomical Chart Company. [2002]. Atlas of pathophysiology.
 Springhouse, PA: Springhouse.)



• Figure 5-3 Bacterial vaginosis. (Source: The Anatomical Chart Company. [2002]. *Atlas of pathophysiology*. Springhouse, PA: Springhouse.)

factors, the nurse can help women to avoid vaginitis or to prevent a recurrence by teaching them to take the precautions highlighted in Teaching Guidelines 5-1.

Infections Characterized by Cervicitis

Chlamydia

Chlamydia is the most common bacterial STI in the United States. The CDC estimates that there are 4 million new cases each year; the highest predictor for the infection is age. Chlamydia causes half of the 1 million recognized cases of pelvic inflammatory disease (PID) in the United States each year, and treatment costs run over \$1 billion yearly. The highest rates of infection are among those ages 15 to 19, regardless of demographics or location (CDC, 2002). Asymptomatic infection is common among both men and women. Men primarily develop urethritis. In women, chlamydia is linked with cervicitis, acute urethral syndrome, salpingitis, PID, and infertility (Youngkin & Davis, 2004).

Chlamydia trachomatis is the bacterium that causes chlamydia. It is an intracellular parasite that cannot produce its own energy and depends on the host for survival. It is often difficult to detect, and this can pose problems for women due to the long-term consequences of untreated infection. Moreover, lack of treatment provides more opportunity for the infection to be transmitted to sexual partners. Newborns delivered to infected mothers may develop conjunctivitis or pneumonitis and have a 50% to 70% risk of acquiring the infection (Sloane, 2002).

Clinical Manifestations

The majority of women (70% to 80%) are asymptomatic (CDC, 2002). If the client is symptomatic, clinical manifestations include:

- Mucopurulent vaginal discharge
- Urethritis

TEACHING GUIDELINES 5-1

Preventing Vaginitis

- Avoid douching to prevent altering the vaginal environment.
- Use condoms to avoid spreading the organism.
- Avoid tights, nylon underpants, and tight clothes.
- Wipe from front to back after using the toilet.
- Avoid powders, bubble baths, and perfumed vaginal sprays.
- Wear clean cotton underpants.
- Change out of wet bathing suits as soon as possible.
- Become familiar with the signs and symptoms of vaginitis.
- Choose to lead a healthy lifestyle.

- Bartholinitis
- Endometritis
- Salpingitis
- Dysfunctional uterine bleeding

Significant risk factors for chlamydia include:

- Being an adolescent
- Having multiple sex partners
- Having a new sex partner
- Engaging in sex without using a barrier contraceptive (condom)
- Using oral contraceptive
- Being pregnant
- Having a history of another STI (Grella, 2005).

Diagnosis

The diagnosis can be made with nucleic acid amplification methods by polymerase chain reaction or ligase chain reaction (DNA probe, such as GenProbe or Pace2). These are highly sensitive and specific when used on urethral and cervicovaginal swabs. They can also be used with good sensitivity and specificity on first-void urine specimens (Brevet & Wiggins, 2002). Several other diagnostic tests exist, including culture, nucleic acid probes, and enzymelinked immunoassays. The chain reaction tests are the most sensitive and cost effective. The CDC strongly recommends screening of asymptomatic women at high risk in whom infection would otherwise go undetected (CDC, 2002).

Treatment

Antibiotics are usually used in treating this STI. The CDC treatment options for chlamydia include doxycycline or azithromycin. Because of the common coinfection of chlamydia and gonorrhea, a combination regimen of ceftriaxone with doxycycline or azithromycin is frequently prescribed (CDC, 2002, p. 33). Additional CDC guide-lines for patient management include annual screening of all sexually active women aged 20 to 25 years old; screening of all high-risk people; and treatment with antibiotics effective against both gonorrhea and chlamydia for anyone diagnosed with a gonococcal infection (CDC, 2002).

Gonorrhea

Gonorrhea is a serious and potentially very severe bacterial infection. It is one of the oldest STIs: reference is made to the condition in the Old Testament of the Bible. It is rapidly becoming more and more resistant to cure. In the United States, an estimated 600,000 new gonorrhea infections occur annually (CDC, 2002). In common with all other STIs, it is an equal-opportunity infection—no one is immune to it, regardless of race, creed, sex, or sexual preference.

The cause of gonorrhea is a gram-negative diplococcus, *Neisseria gonorrhoeae*. The site of infection is the columnar epithelium of the endocervix. Gonorrhea is almost exclusively transmitted by sexual activity. In pregnant women, gonorrhea is associated with chorioamnionitis, premature labor, premature rupture of membranes, and postpartum endometritis (Gibbs et al., 2004). It can also be transmitted to the newborn in the form of ophthalmia neonatorum during birth by direct contact with gonococcal organisms in the cervix. Ophthalmia neonatorum is highly contagious and if untreated leads to blindness of the newborn.

Clinical Manifestations

Between 50% and 90% of women infected with gonorrhea are totally symptom-free (Sloane, 2002). Because women are so frequently asymptomatic, they are regarded as the real "problem" in the spread of gonorrhea. If symptoms are present, they might include:

- · Abnormal vaginal discharge
- Dysuria
- Cervicitis
- Abnormal vaginal bleeding
- Bartholin's abscess
- PID
- Neonatal conjunctivitis in newborns
- Mild sore throat (for pharyngeal gonorrhea)
- Rectal infection (asymptomatic)
- Perihepatitis (King, 2004)

Risk factors include low socioeconomic status, living in an urban area, single status, inconsistent use of barrier contraceptives, and multiple sex partners.

Sometimes a local gonorrhea infection is self-limiting (there is no further spread), but usually the organism ascends upward through the endocervical canal to the endometrium of the uterus, further on to the fallopian tubes, and out into the peritoneal cavity. When the peritoneum and the ovaries become involved, the condition is known as *pelvic inflammatory disease* (PID). The scarring to the fallopian tubes is permanent. This damage is a major cause of infertility and is a possible contributing factor in ectopic pregnancy (Sloane, 2002).

If gonorrhea remains untreated, it can enter the bloodstream and produce a disseminated gonococcal infection. This severe form of infection can invade the joints (arthritis), the heart (endocarditis), the brain (meningitis), and the liver (toxic hepatitis). Figure 5-4 shows the typical appearance of gonorrhea.

Diagnosis

The CDC recommends screening for all women at risk for gonorrhea. Pregnant women should be screened at the first prenatal visit and again at 36 weeks of gestation. Nucleic acid hybridization tests (GenProbe) are used for diagnosis. Any woman suspected of having gonorrhea should be tested for chlamydia also because coinfection (45%) is extremely common (Lowdermilk & Perry, 2004).



• Figure 5-4 Gonorrhea.

Treatment

The treatment of choice for uncomplicated gonococcal infections is cefixime orally or ceftriaxone intramuscularly. Azithromycin orally or doxycycline should accompany all gonococcal treatment regimens if chlamydial infection is not ruled out (CDC, 2002). Pregnant women should not be treated with quinolones or tetracyclines. Cephalosporins or a single 2-g intramuscular dose of spectinomycin should be used during pregnancy (CDC, 2002). To prevent gonococcal ophthalmia neonatorum, a prophylactic agent should be instilled into the eyes of all newborns; this procedure is required by law in most states. Erythromycin or tetracycline ophthalmic ointment in a single application is recommended (CDC, 2002).

Nursing Management

The prevalence of chlamydia and gonorrhea is increasing dramatically, and these infections can have long-term effects on people's lives. Sexual health is an important part of a person's physical and mental health, and nurses have a professional obligation to address it. Nurses need to be particularly sensitive when addressing STIs because women are often embarrassed or feel guilty. There is still a social stigma attached to STIs, so women need to be reassured about confidentiality.

The nurse's level of knowledge about chlamydia and gonorrhea should include treatment strategies, referral sources, and preventive measures. The nurse should be skilled at education and counseling and should be comfortable with women diagnosed with these infections.

High-risk groups include single women, women younger than 25 years, African-American women, women with a history of STIs, those with new or multiple sex partners, those with inconsistent use of barrier contraception, and women living in communities with high infection rates (Kirkham et al., 2005). Assessment involves taking a health history that includes a comprehensive sexual history. Questions about the number of sex partners and the use of safer sex practices are appropriate. Previous and current symptoms should be reviewed. Seeking treatment and informing sex partners should be emphasized.

The four-level P-LI-SS-IT model (Box 5-2) can be used to determine interventions for various women because it can be adapted to the nurse's level of knowledge, skill, and experience. Of utmost importance is the willingness to listen and show interest and respect in a nonjudgmental manner.

In addition to meeting the health needs of women with chlamydia and gonorrhea, the nurse is responsible for educating the public about the increasing incidence of these infections. This information should include highrisk behaviors associated with these infections, signs and symptoms, and the treatment modalities available. The nurse should stress that both of these STIs can lead to infertility and long-term sequelae. Safer sex practices need to be taught to people in non-monogamous relationships.

The nurse must know the physical and psychosocial responses to these STIs to prevent transmission and the disabling consequences. If this epidemic is to be halted, nurses must take a major front-line role now.

Infections Characterized by Genital Ulcers

Genital Herpes Simplex

Genital herpes is a recurrent, life-long viral infection. The CDC estimates that 50 million Americans have *genital herpes simplex* (HSV) infection, with a half million new cases annually (CDC, 2002). Two serotypes of HSV have been identified: HSV-1 and HSV-2. Today, approximately 10% of genital herpes infections are thought to be caused by HSV-1 and 90% by HSV-2 (Sloane, 2002). HSV-1 causes the familiar fever blisters or cold sores on the lips, eyes, and face. HSV-2 invades the mucous membranes of the geni-

BOX 5-2 THE P-LI-SS-IT MODEL

- **P** Permission—gives the woman permission to talk about her experience
- LI Limited Information—information given to the woman about STIs
 - Factual information to dispel myths about STIs
 - · Specific measures to prevent transmission
 - · Ways to reveal information to her partners
 - Physical consequences if the infections are untreated
- **SS** Specific Suggestions—an attempt to help women change their behavior to prevent recurrence and prevent further transmission of the STI
- **IT** Intensive Therapy—involves referring the woman or couple for appropriate treatment elsewhere based on their life circumstances

tal tract and is known as herpes genitalis. Most persons infected with HSV-2 have not been diagnosed.

The herpes simplex virus is transmitted by contact of mucous membranes or breaks in the skin with visible or nonvisible lesions. Most genital herpes infections are transmitted by individuals unaware that they have an infection. Many have mild or unrecognized infections but still shed the herpes virus intermittently. HSV is transmitted primarily by direct contact with an infected individual who is shedding the virus. Kissing, sexual contact, and vaginal delivery are means of transmission.

Along with the increase in the incidence of genital herpes has been an increase in neonatal herpes simplex viral infections, which are associated with a high incidence of mortality and morbidity. The risk of neonatal infection with a primary maternal outbreak is between 30% to 50%; it is less than 1% with a recurrent maternal infection (CDC, 2002).

Clinical Manifestations

The clinical manifestations of HSV can be divided into the primary episode and recurrent infections. The first or primary episode is usually the most severe, with a prolonged period of viral shedding. Primary HSV is a systemic disease characterized by multiple painful vesicular lesions, mucopurulent discharge, superinfection with Candida, fever, chills, malaise, dysuria, headache, genital irritation, inguinal tenderness, and lymphadenopathy. The lesions in the primary herpes episode are frequently located on the vulva, vagina, and perineal areas. The vesicles will open and weep and finally crust over, dry, and disappear without scar formation (Fig. 5-5). This viral shedding process usually takes up to 2 weeks to complete. The virus remains dormant in the nerve cells for life, resulting in periodic outbreaks. Having sex with an infected partner places the individual at risk for contracting HSV.

Recurrent infection episodes are usually much milder and shorter in duration than the primary one. Tingling, itching, pain, unilateral genital lesions, and a more rapid resolution of lesions are characteristics of recurrent infections. Recurrent herpes is a localized disease characterized by typical HSV lesions at the site of initial viral



• Figure 5-5 Genital herpes simplex.

entry. Recurrent herpes lesions are fewer in number and less painful and resolve more rapidly (Youngkin & Davis, 2004).

Recurrent genital herpes outbreaks are triggered by precipitating factors such as emotional stress, menses, and sexual intercourse, but more than half of recurrences occur without a precipitating cause. Immunocompromised women have more frequent and more severe recurrent outbreaks than normal hosts (King, 2004).

Living with genital herpes can be difficult due to the erratic, recurrent nature of the infection, the location of the lesions, the unknown causes of the recurrences, and the lack of a cure. Further, the stigma associated with this infection may affect the individual's feelings about herself and her interaction with partners. Potential psychosocial consequences may include emotional distress, isolation, fear of rejection by a partner, fear of transmission of the disease, loss of confidence, and altered interpersonal relationships (White & Mortensen, 2003).

Diagnosis

Diagnosis of HSV is often based on clinical signs and symptoms and confirmed by viral culture of fluid from the vesicle. Papanicolaou (Pap) smears are an insensitive and nonspecific diagnostic test for herpes simplex virus infection and should not be relied on for diagnosis.

Treatment

No cure exists, but antiviral drug therapy helps to reduce or suppress symptoms, shedding, and recurrent episodes. Advances in treatment with acyclovir, famciclovir, and valacyclovir have resulted in improved quality of life for those infected with HSV. However, these drugs neither eradicate latent virus nor affect the risk, frequency, or severity of recurrences after the drug is discontinued (CDC, 2002). Suppressive therapy is recommended for individuals with six or more recurrences per year. The natural course of the disease is for recurrences to be less frequent over time.

The management of genital herpes includes antiviral therapy. The safety of antiviral therapy has not been established during pregnancy. Therapeutic management also includes counseling regarding the natural history of the disease, the risk of sexual and perinatal transmission, and the use of methods to prevent further spread. Nurses must also address the psychosocial aspects of this STI with women by discussing appropriate coping skills, acceptance of the life-long nature of the condition, and options for treatment and rehabilitation.

Syphilis

Syphilis is a complex curable bacterial infection caused by the spirochete *Treponema pallidum*. It is a serious systemic disease that can lead to disability and death if untreated. Rates of syphilis in the United States are currently declin-

ing, but they remain high among young adult African-Americans in urban areas and in the south (CDC, 2002). It continues to be one of the most important STIs both because of its biological effect on HIV acquisition and transmission and because of its impact on infant health (Workowski & Berman, 2002).

The syphilis spirochete can cross the placenta at any time during pregnancy. One out of every 10,000 infants born in the United States has congenital syphilis (CDC, 2002). Maternal infection consequences include spontaneous abortion, prematurity, stillbirth, and multisystem failure of the heart, lungs, spleen, liver, and pancreas, as well as structural bone damage and nervous system involvement and mental retardation (Gilbert & Harmon, 2003).

Clinical Manifestations

Syphilis is divided into four stages: primary, secondary, latency, and tertiary. Primary syphilis is characterized by a chancre (painless ulcer) at the site of bacterial entry that will disappear within 1 to 6 weeks without intervention (Fig. 5-6). Motile spirochetes are present on darkfield examination of ulcer exudate. In addition, painless bilateral adenopathy is present during this highly infectious period. Secondary syphilis appears 2 to 6 months after the initial exposure and is manifested by flulike symptoms and a maculopapular rash of the trunk, palms, and soles. Alopecia and adenopathy are both common during this stage. The secondary stage of syphilis lasts about 2 years. Once the secondary stage subsides, the *latency* period begins. This stage is characterized by the absence of any clinical manifestations of disease, although the serology is positive. This stage can last as long as 20 years. If not treated, tertiary or late syphilis occurs, with lifethreatening heart disease and neurologic disease that slowly destroys the heart, eyes, brain, central nervous system, and skin.

Diagnosis

Darkfield microscopic examinations and direct fluorescent antibody tests of lesion exudate or tissue are the definitive



• Figure 5-6 Chancre of primary syphilis.

methods for diagnosing early syphilis. A presumptive diagnosis can be made by using two serologic tests:

- Nontreponemal tests (Venereal Disease Research Laboratory [VDRL] and rapid plasma reagin [RPR])
- Treponemal tests (fluorescent treponemal antibody absorbed [FTA-ABS] and *T. pallidum* particle agglutination [TP-PA]) (CDC, 2002).

Treatment

Fortunately, there is effective treatment for syphilis. Penicillin G, administered by either the intramuscular or intravenous route, is the preferred drug for all stages of syphilis. For pregnant or nonpregnant women with syphilis of less than 1 year's duration, the CDC recommends 2.4 million units of benzathine penicillin G intramuscularly in a single dose. If the syphilis is of longer duration (>1 year) or of unknown duration, 2.4 million units of benzathine penicillin G is given intramuscularly once a week for 3 weeks. The preparations used, the dosage, and the length of treatment depends on the stage and clinical manifestations of disease (CDC, 2002). Other medications, such as doxycycline, are available if the client is allergic to penicillin.

Women should be re-evaluated at 6 and 12 months after treatment for primary or secondary syphilis with additional serologic testing. Women with latent syphilis should be followed clinically and serologically at 6, 12, and 24 months (King, 2004).

Nursing Management

Genital ulcers from either herpes or syphilis can be devastating to women, and the nurse can be instrumental in helping her through this difficult time. Referral to a support group may be helpful. Teaching Guidelines 5-2 highlights appropriate teaching points for the patient with genital ulcers.

TEACHING GUIDELINES 5-2

Caring for Genital Ulcers

- Abstain from intercourse during the prodromal period and when lesions are present.
- Wash hands with soap and water after touching lesions to avoid autoinoculation.
- Use comfort measures such as wearing nonconstricting clothes, wearing cotton underwear, urinating in water if urination is painful, taking lukewarm sitz baths, and air drying lesions with a hair dryer on low heat.
- Avoid extremes of temperature such as ice packs or hot pads to the genital area as well as application of steroid creams, sprays, or gels.
- Use condoms with all new or noninfected partners.
- Inform healthcare professionals of your condition.

Pelvic Inflammatory Disease

Pelvic inflammatory disease is an ascending infection of the upper female reproductive tract, most often caused by untreated chlamydia or gonorrhea (Fig. 5-7). An estimated 1 million cases are diagnosed annually, resulting in 250,000 hospitalizations (CDC, 2005). It is a serious health problem in the United States, costing an estimated \$10 billion annually in terms of hospitalizations and surgical procedures (Murray et al., 2002). Complications include ectopic pregnancy, pelvic abscess, infertility, recurrent or chronic episodes of the disease, chronic abdominal pain, pelvic adhesions, and depression (Youngkin & Davis, 2004). Because of the seriousness of the complications of PID, an accurate diagnosis is critical.

Clinical Manifestations and Diagnosis

Because of the wide variety of clinical manifestations of PID, clinical diagnosis can be challenging. To reduce the risk of missed diagnosis, the CDC has established criteria to establish the diagnosis of PID. Minimal criteria (all must be present) are lower abdominal tenderness, adnexal tenderness, and cervical motion tenderness. Additional supportive criteria that support a diagnosis of PID are:

- Abnormal cervical or vaginal mucopurulent discharge
- Oral temperature above 101°F
- · Elevated erythrocyte sedimentation rate
- Elevated C-reactive protein level
- N. gonorrhoeae or C. trachomatis infection documented
- White blood cells on saline vaginal smear (CDC, 2002)

The only way to definitively diagnose PID is through an endometrial biopsy, transvaginal ultrasound, or laparoscopic examination.



Spread of gonorrhea or chlamydia

• Figure 5-7 Pelvic inflammatory disease. Chlamydia or gonorrhea spreads up the vagina into the uterus and then to the fallopian tubes and ovaries.

Risk factors for PID include:

- Adolescence or young adulthood
- Nonwhite female
- Having multiple sex partners
- Early onset of sexual activity
- History of PID or STI
- Having intercourse with a partner who has untreated urethritis
- Recent insertion of an intrauterine device (IUD)
- Nulliparity
- · Cigarette smoking
- Engaging in sex during menses (Youngkin & Davis, 2004)

Treatment

Treatment of PID must include empiric, broad-spectrum antibiotic coverage of likely pathogens. The client is treated on an ambulatory basis with oral antibiotics or is hospitalized and given antibiotics intravenously. The decision to hospitalize a woman is based on clinical judgment and the severity of her symptoms. Frequently, oral antibiotics are initiated, and if no improvement is seen within 72 hours, the woman is admitted to the hospital. Treatment then includes intravenous antibiotics, increased oral fluids to improve hydration, bed rest, and pain management. Follow-up is needed to validate that the infectious process is gone to prevent the development of chronic pelvic pain.

Nursing Management

Depending on the clinical setting (hospital or community clinic) where the nurse encounters the woman diagnosed with PID, a risk assessment should be done to ascertain what interventions are appropriate to prevent a recurrence. Explaining the various diagnostic tests needed to the woman is important to gain her cooperation. The nurse needs to discuss with the woman the implications of PID and the risk factors for the infection; her sexual partner should be included if possible. Sexual counseling should include practicing safer sex, limiting the number of sexual partners, using barrier contraceptives consistently, avoiding vaginal douching, considering another contraceptive method if she has an IUD and has multiple sexual partners, and completing the course of antibiotics prescribed (Abbuhl & Reyes, 2004). Review the serious sequelae that may occur if the condition is not treated or if the woman does not comply with the treatment plan. Ask the woman to have her partner go for evaluation and treatment to prevent a repeat infection. Provide nonjudgmental support while stressing the importance of barrier contraceptive methods and follow-up care.

Human Immunodeficiency Virus (HIV)

An estimated 900,000 people currently live with HIV, and an estimated 40,000 new HIV infections have occurred annually in the United States (CDC, 2003). Men who have sex with men represent the largest proportion of new infections, followed by men and women infected through heterosexual sex and injection drug use (CDC, 2004). The number of women with HIV infection and AIDS has been increasing steadily worldwide. The World Health Organization (WHO) estimates that over 19 million women are living with HIV/AIDS worldwide, accounting for approximately 50% of the 40 million adults living with HIV/AIDS (NIAID, 2004). HIV disproportionately affects African-American and Hispanic women: together they represent less than 25% of all U.S. women, yet they account for more than 82% of AIDS cases in women (CDC, 2003). Worldwide, more than 90% of all HIV infections have resulted from heterosexual intercourse. Women are particularly vulnerable to heterosexual transmission of HIV due to substantial mucosal exposure to seminal fluids. This biological fact amplifies the risk of HIV transmission when coupled with the high prevalence of nonconsensual sex, sex without condoms, and the unknown and/or high-risk behaviors of their partners (NIAID, 2004).

Therefore, the face of HIV/AIDS is becoming the face of young women. That shift will ultimately exacerbate the incidence of HIV because women spread it not only through sex, but also through nursing and childbirth.

Acquired immunodeficiency syndrome (AIDS) is a breakdown in the immune function caused by HIV, a retrovirus. The infected person develops opportunistic infections or malignancies that become fatal (Murray & McKinney, 2006).

Twenty years have passed since HIV/AIDS began to affect our society. Since then 40 million people have been infected by the virus, with AIDS being the fourth leading cause of death globally (CDC, 2004). The morbidity and mortality of HIV continues to hold the attention of the medical community. While there has been a dramatic improvement in both morbidity and mortality with the use of highly active antiretroviral therapy (HAART), the incidence of HIV infection continues to rise. More than 90% of individuals infected with HIV worldwide do not know they are infected (CDC, 2004).

The fetal and neonatal effects of acquiring HIV through perinatal transmission are devastating and eventually fatal. An infected mother can transmit HIV infection to her newborn before or during birth and through breastfeeding. Most cases of mother-to-child HIV transmission, the cause of more than 90% of pediatric-acquired infections worldwide, occur late in pregnancy or during delivery. Transmission rates vary from 25% in untreated non-breastfeeding populations in industrialized countries to about 40% among untreated breastfeeding populations in developing countries (NIAID, 2004).

Despite the dramatic reduction in perinatal transmission, hundreds of infants will be born infected with HIV. In terms of epidemiology, fatality rate, and its social, legal, ethical, and political aspects, HIV/AIDS has become a public health crisis and has generated more concern than any other infectious disease in modern medical history (Sloane, 2002). To date, there is no cure for this fatal viral infection.

Clinical Manifestations

The HIV virus is transmitted by intimate sexual contact, by sharing needles for intravenous drug use, from mother to fetus during pregnancy, or by transfusion of blood or blood products. When a person is initially infected with HIV, he or she goes through an acute primary infection period for about 3 weeks. The HIV viral load drops rapidly because the host's immune system works well to fight this initial infection. The onset of the acute primary infection occurs 2 to 6 weeks after exposure. Symptoms include fever, pharyngitis, rash, and myalgia. Most people do not associate this flulike condition with HIV infection. After initial exposure, there is a period of 3 to 12 months before seroconversion. The person is considered infectious during this time.

After the acute phase, the infected person becomes asymptomatic, but the HIV virus begins to replicate. Even though there are no symptoms, the immune system runs down. A normal person has a CD4 T-cell count of 450 to 1,200 cells per microliter. When the CD4 T-cell count reaches 200 or less, the person has reached the stage of AIDS. The immune system begins a constant battle to fight this viral invasion, but over time it falls behind. A viral reservoir occurs in T cells that can store various stages of the virus. The onset and severity of the disease correlate directly with the viral load; the more HIV virus that is present, the worse the person will feel.

As profound immunosuppression begins to occur, an opportunistic infection will occur, qualifying the person for the diagnosis of AIDS. The diagnosis is finally confirmed when the CD4 count is below 200. As of now, AIDS will eventually develop in everyone who is HIV positive.

Because the HIV virus over time depletes the CD4 cell population, infected people become more susceptible to opportunistic infections. Currently, the AIDS virus and response to treatment are tracked based on CD4 count rather than viral load. Untreated HIV will progress to AIDS in about 10 years, but this progression can be delayed by antiretroviral therapy (Moreo, 2003).

Diagnosis

Newly approved quick tests for HIV produce results in 20 minutes and also lower the healthcare worker's risk of occupational exposure by eliminating the need to draw blood. The CDC's Advancing HIV Prevention initiative, launched in 2003, has made increased testing a national priority. The initiative calls for testing to be incorporated into routine medical care and to be delivered in more nontraditional settings.

Fewer than half of adults aged 18 to 64 have ever had an HIV test, according to the CDC. The agency estimates that one fourth of the 900,000 HIV-infected people in the United States do not know they are infected. This means they are not receiving treatment that can prolong their lives, and they may be unknowingly infecting others. In addition, even when people do get tested, one in three failed to return to the testing site to learn their results when there was a 2-week wait. The CDC hopes that the new "one-stop" approach to HIV testing changes that pattern. About 40,000 new HIV cases are reported each year in the United States, and that number has held steady for the past few years despite massive efforts in prevention education (CDC, 2002).

The OraQuick Rapid HIV-1 Antibody Test detects the HIV antibody in a blood sample taken with a fingerstick or from an oral fluid sample. Both can produce results in as little as 20 minutes with more than 99% accuracy (Hemmila, 2004). The FDA has approved two other rapid blood tests: Reveal Rapid HIV-1 Antibody Test and the Uni-Gold Recombigen HIV Test.

Testing for HIV should be offered to anyone seeking evaluation and treatment for STIs. Counseling before and after testing is an integral part of the testing procedure. Informed consent must be obtained before an HIV test is performed. HIV infection is diagnosed by tests for antibodies against HIV-1 and HIV-2 (HIV-1/2). Antibody testing begins with a sensitive screening test (e.g., the enzyme immunoassay [ELISA]). This is a specific test for antibodies to HIV that is used to determine whether the person has been exposed to the HIV retrovirus. Reactive screening tests must be confirmed by a more specific test (e.g., the Western blot [WB]) or an immunofluorescence assay (IFA). This is a highly specific test that is used to validate a positive ELISA test finding. If the supplemental test (WB or IFA) is positive, it confirms that the person is infected with HIV and is capable of transmitting the virus to others. HIV antibody is detectable in at least 95% of people within 3 months after infection (CDC, 2002).

Treatment

The goals of HIV drug therapy are to:

- · Decrease the HIV viral load below the level of detection
- Restore the body's ability to fight off pathogens
- Improve the client's quality of life
- Reduce HIV morbidity and mortality (Moreo, 2003)

Often treatment begins with combination HAART therapy at the time of the first infection, when the person's immune system is still intact. The current HAART therapy standard is a triple combination therapy, but some clients may be given a fourth or fifth agent.

There are obvious challenges involved in meeting these goals. The viral load can be reduced much more quickly than the T-cell count can be increased, and this disparity leaves the woman vulnerable to opportunistic infections.

Current therapy to prevent the transmission of HIV to the newborn includes a three-part regimen of having the mother take an oral antiretroviral agent at 14 to 34 weeks of gestation; it is continued throughout pregnancy. During labor, an antiretroviral agent is administered intravenously until delivery. An antiretroviral syrup is administered to the infant within 12 hours after birth.

Dramatic new treatment advances with antiretroviral medications have turned a disease that used to be a death sentence into a chronic, manageable one for individuals who live in countries where antiretroviral therapy is available. Despite these advances in treatment, only a minority of HIV-positive Americans who take antiretroviral medications are receiving the full benefits because they are not adhering to the prescribed regimen. Successful antiretroviral therapy requires nearly perfect adherence to a complex medication regimen; less-than-perfect adherence leads to drug resistance (CDC, 2002).

Adherence is difficult because of the complexity of the regimen and the life-long duration of treatment. A typical antiretroviral regimen may consist of three or more medications taken twice daily. Adherence is made even more difficult because of the unpleasant side effects, such as nausea and diarrhea. Women in early pregnancy already experience these, and the antiretroviral medication only exacerbates them.

Nurses can help to reduce the development of drug resistance and thus treatment failure by identifying the barriers to adherence and can work to help the woman to overcome them. Some of the common barriers include:

- The woman does not understand the link between drug resistance and nonadherence.
- The woman fears revealing her HIV status by being seen taking medication.
- The woman hasn't adjusted emotionally to the HIV diagnosis.
- The woman doesn't understand the dosing regimen or schedule.
- The woman experiences unpleasant side effects frequently.
- The woman feels anxious or depressed (Enriquez & McKinsey, 2004)

Depending on which barriers are causing nonadherence, the nurse can work with the woman by educating her about the dosing regimen, helping her find ways to integrate the prescribed regimen into her lifestyle, and making referrals to social service agencies as appropriate. By addressing barriers on an individual level, the nurse can help the woman to overcome them.

Nursing Management

ConsiderTHIS!

I was thinking of my carefree college days, when the most important thing was having an active sorority life and meeting guys. I had been raised by very strict parents and never allowed to date under their watch. Since I attended an out-of-state college, my parent's outdated advice and rules no longer applied. Abruptly, my past thoughts were interrupted by the HIV counselor asking about my feelings concerning my positive diagnosis. What was there to say at this point? I had a lot of fun but never dreamed it would haunt me for the rest of my life, which was going to be shortened considerably now. I only wish I could turn back the hands of time and listened to my parents' advice, which somehow doesn't seem so outdated now.

Thoughts: All of us have thought back on our lives to better times and wondered how our lives would have changed if we had made better choices or gone down another path. It is a pity that we have only one chance to make good sound decisions at times. What would you have changed in your life if given a second chance? Can you still make a change for the better now?

Nurses can play a major role in caring for the HIVpositive woman by helping her accept the possibility of a shortened life span, cope with others' reactions to a stigmatizing illness, and develop strategies to maintain her physical and emotional health. The nurse can educate the woman about changes she can make in her behavior to prevent spreading HIV to others and can refer her to appropriate community resources such as HIV medical care services, substance abuse, mental health services, and social services. See Nursing Care Plan 5-1: Overview for the Woman With HIV.

Providing Education About Drug Therapy

The goal of antiretroviral therapy is to suppress viral replication so that the viral load becomes undetectable (<400). This is done to preserve immune function and delay disease progression but is a challenge because of the side effects of nausea and vomiting, diarrhea, altered taste, anorexia, flatulence, constipation, headaches, anemia, and fatigue. Although not everyone experiences all of the side effects, the majority do have some of them. Current research hasn't documented the long-term safety of exposure of the fetus to antiretroviral agents during pregnancy, but collection of data is ongoing.

The nurse can educate the woman about the prescribed drug therapy and impress upon her that it is very important to take the regimen as prescribed. Offer suggestions about how to cope with anorexia, nausea, and vomiting by:

Nursing Care Plan 5-1

Overview of the Woman Who Is HIV Positive

Annie, a 28-year-old African-American woman, is HIV positive. She acquired HIV through unprotected sexual contact. She has been inconsistent in taking her antiretroviral medications and presents today stating she is tired and doesn't "feel well."



Nursing Diagnosis: Risk for infection related to positive HIV status and inconsistent compliance with antiretroviral therapy

Outcome Identification and evaluation	Interventions with rationales
	 Assess CD4 count and viral loads to determine disease progression (CD4 counts <500/L and viral loads >10,000 copies/L = increased risk for opportunistic infections). Assess complete blood count to identify presence of infection (>10,000 cells/mm³ may indicate infection) Assess oral cavity and mucous membranes for painful white patches in mouth to evaluate for possible fungal infection. Monitor for general signs and symptoms of infections, such as fever, weakness, and fatigue, to ensure early identification. Stress importance of avoiding people with infections when possible to minimize risk of exposure to infections. Teach importance of keeping appointments so her CD4 count and viral load can be monitored to alert the healthcare provider about her immune system status. Instruct her to reduce her exposure to infections via: Meticulous handwashing Thorough cooking of meats, eggs, and vegetables Wearing shoes at all times, especially when outdoors Encourage a balance of rest with activity throughout the day to prevent overexertion. Stress importance of an untritionist to help her understand what constitutes a well-balanced diet with supplements to promote health and ward off infection.

Overview of the Woman Who Is HIV Positive (continued)

Nursing Diagnosis: Knowledge deficit related to HIV infection and possible complications	
Outcome Identification and evaluation	Interventions with rationales
<text></text>	<list-item><list-item> Assess understanding of HIV and its treatment to provide a baseline for teaching. Establish trust and be honest with Annie; encourage her to talk about her fears and impact of the disease to provide an outlet for her concerns and encourage her to discuss reasons for her noncompliance. Present a nonjudgmental, accessible, confidential, and culturally sensitive approach to promote Annie's self-esteem and allow her to feel that she is a priority. Explain measures, including safer sex practices and birth control options, to prevent disease progression; determine her willingness to practice safer sex to protect others to determine further teaching needs. Educate about signs and symptoms of disease progression and potential opportunistic infections to promote early detection for prompt intervention. Encourage Annie to keep scheduled appointments to ensure follow-up and allow early detection of potential appointments to ensure follow-up and allow early detection of potential appointments to ensure follow-up and allow early detection of potential appointments to ensure follow-up and allow early detection of potential appointments to ensure follow-up and allow early detection of potential problems. </list-item></list-item>

- Separating the intake of food and fluids
- · Eating dry crackers upon arising
- Eating six small meals daily
- Using high-protein supplements (Boost, Ensure) to provide quick and easy protein and calories
- Eating "comfort foods," which may appeal when other foods don't

Promoting Compliance

Remaining compliant with drug therapy is a huge challenge for many HIV-infected people. Compliance becomes difficult when the same pills that are supposed to thwart the disease are making the person sick. Nausea and diarrhea are just two of the possible side effects. It is often difficult to increase the client's quality of life when so much oral mediation is required. The combination medication therapy is challenging for many people, and staying compliant over a period of years is extremely difficult. The nurse can stress the importance of taking the prescribed antiretroviral drug therapies by explaining that they help prevent replication of the retroviruses and subsequent progression of the disease, as well as decreasing the risk of perinatal transmission of HIV. In addition, the nurse can provide written materials describing diet, exercise, medications, and signs and symptoms of complications and opportunistic infections. This information should be reinforced at each visit.

Preventing HIV Infection

The lack of information about HIV infection and AIDS causes great anxiety and fear of the unknown. Nurses must take a leadership role in educating the public about risky behaviors in the fight to control this disease.

The core of HIV prevention is to abstain from sex until marriage, to be faithful, and to use condoms (male and female) and stress HIV education for both sexes. This is all good advice for many women, but some simply do not have the economic and social power or choices or control over their lives to put that advice into practice. Nurses need to recognize that fact and address the factors that will give them more control over their lives by providing anticipatory guidance, giving ample opportunities to practice negotiation techniques and refusal skills in a safe environment, and encouraging the use of female condoms to protect themselves against this deadly virus. Prevention is the key to reversing the current infection trends.

Providing Care During Pregnancy and Childbirth

Voluntary counseling and HIV testing should be offered to all pregnant women as early in the pregnancy as possible to identify HIV-infected women so that treatment can be initiated early. Once identified as being HIV infected, pregnant women should be informed about the risk for perinatal infection. Current evidence indicates that in the absence of antiretroviral medications, 25% of infants born to HIV-infected mothers will become infected with HIV (CDC, 2003). If women do receive a combination of antiretroviral therapies during pregnancy, however, the risk of HIV transmission to the newborn drops below 2% (NIAID, 2004). In addition, HIV can be spread to the infant through breastfeeding, and thus all HIV-infected pregnant women should be counseled to avoid breastfeeding and use formula instead.

In addition, the woman needs instructions in ways to enhance her immune system by following these guidelines during pregnancy:

- Getting adequate sleep each night (7 to 9 hours)
- Avoiding infections (e.g., staying out of crowds, hand washing)
- Decreasing stress in her life
- Consuming adequate protein and vitamins
- · Increasing her fluid intake to 2 liters daily to stay hydrated
- Planning rest periods throughout the day to prevent fatigue

Despite the dramatic reduction in perinatal transmission, hundreds of infants will be born infected with HIV. The birth of each infected infant is a missed prevention opportunity. To minimize perinatal HIV transmission, nurses can identify HIV infection in women, preferably before pregnancy; provide information relative to disease prevention; and encourage HIV-infected women to follow the prescribed drug therapy.

Providing Appropriate Referrals

The HIV-infected woman is challenged by coping with the normal activities of daily living with a compromised energy level and decreased physical endurance. She may be overwhelmed by the financial burdens of medical and drug therapies and the emotional responses to a life-threatening condition, as well as concern about her infant's future, if she is pregnant. A case management approach is needed to deal with the complexity of her needs during this time. The nurse can be an empathetic listener but needs to make appropriate referrals for nutritional services, counseling, homemaker services, spiritual care, and local support groups. Many community-based organizations have developed programs to address the numerous issues regarding HIV/AIDS. The national AIDS hotline (1-800-342-AIDS) is a good resource.

Human Papillomavirus

Human papillomavirus (HPV) is the most common viral infection in the United States (CDC, 2005). Genital warts or condylomata (Greek for warts) are caused by HPV. Conservative estimates suggest that in the United States, approximately 20 million people have productive HPV infection, and 5.5 million Americans acquire it annually (CDC, 2005). HPV-mediated oncogenesis is responsible for up to 95% of cervical squamous cell carcinomas and nearly all preinvasive cervical neoplasms (Morris, 2002). More than 40 types of HPV can infect the genital tract.

Clinical Manifestations

Most HPV infections are asymptomatic, unrecognized or subclinical. Visible genital warts usually are caused by HPV types 6 or 11. Other HPV types (16, 18, 31, 33, and 35) have been strongly associated with cervical cancer (CDC, 2005). In addition to the external genitalia, genital warts can occur on the cervix and in the vagina, urethra, anus, and mouth. Depending on the size and location, genital warts can be painful, friable, and pruritic, although most are typically asymptomatic (Fig. 5-8).

Risk factors for HPV include having multiple sex partners, immunosuppression, smoking, age (15 to 25), contraceptive use, pregnancy, concurrent herpes infection, and socioeconomic variables such as poverty, domestic violence, sexual abuse, and inadequate health care (Hatcher et al., 2004).

Diagnosis

Clinically visible warts are diagnosed by inspection. The warts are fleshy papules with a warty, granular surface. Lesions can grow very large during pregnancy, affecting urination, defecation, mobility, and descent of the fetus (Carey & Rayburn, 2002). Large lesions, which may resemble cauliflowers, exist in coalesced clusters and bleed easily.



• Figure 5-8 Genital warts.

Diagnostic testing to determine the specific HPV strain may be useful to discriminate between low-risk and highrisk HPV types. A specimen for testing can be obtained with a fluid-phase collection system such as Thin Prep. If the test is positive for the high-risk types, the woman should be referred for colposcopy. Serial Pap smears are done for low-risk women. Regular Pap smears will detect the cellular changes associated with HPV.

Treatment

The primary goal of treatment is to remove the warts and induce wart-free periods for the client. Treatment of genital warts should be guided by the preference of the client and available resources. No single treatment has been found to be ideal for all clients, and most treatment modalities appear to have comparable efficacy. Treatment options for HPV are numerous and may include:

- Topical trichloroacetic acid (TCA) 80% to 90%
- · Liquid nitrogen cryotherapy
- Topical imiquimod 5% cream (Aldara)
- Topical podophyllin 10% to 25%
- · Laser carbon dioxide vaporization
- Client-applied Podofilox 0.5% solution or gel
- Simple surgical excision
- Loop electrosurgical excisional procedure (LEEP)
- Intralesional interferon therapy (NAIAID, 2004b)

Nursing Management

Education and counseling are important aspects of managing women with genital warts. The woman should know that:

- Even after the warts are removed, the HPV still remains and viral shedding will continue.
- The likelihood of transmission to future partners and the duration of infectivity after treatment is unknown.
- The use of latex condoms has been associated with a lower rate of cervical cancer.
- The recurrence of genital warts within the first few months after treatment is common and usually indicates recurrence rather than reinfection.
- Examination of sex partners is not necessary because there are no data to indicate that reinfection plays a role in recurrences (CDC, 2002).

Because genital warts can proliferate and become friable during pregnancy, they should be removed using a local agent. A cesarean birth is not indicated solely to prevent transmission of HPV infection to the newborn, unless the pelvic outlet is obstructed by warts (CDC, 2002).

Clinical studies have confirmed that HPV is the cause of essentially all cases of cervical cancer, which is the fourth most common cancer in women in the United States following lung, breast, and colorectal cancer (American Cancer Society, 2003). An HPV infection has many implications for the woman's health, but most women are unaware of HPV and its role in cervical cancer. Recurring warts is a key risk factor for the development of cervical cancer. Nurses can play a significant role in educating women about the link between HPV and cervical cancer prevention. All women should obtain regular Pap smears. The morbidity and mortality associated with cervical cancer can be reduced. Research continues toward the development of HPV immunizations, but at present regular Pap smears and follow-up of any abnormalities is the standard of care (Likes & Itano, 2003).

Vaccine-Preventable STIs

Hepatitis A and B

Hepatitis is an acute, systemic, viral infection that can be transmitted sexually. The viruses associated with hepatitis or inflammation of the liver are hepatitis A, B, C, D, E, and G. *Hepatitis A* (HAV) is spread via the gastrointestinal tract. It can be acquired by drinking polluted water, eating uncooked shellfish from sewage-contaminated waters or food handled by a hepatitis carrier with poor hygiene, and from oral/anal sexual contact. Approximately 33% of the U.S. population has serologic evidence of prior hepatitis A infection; the rate increases directly with age (CDC, 2002).

Hepatitis B (HBV) is transmitted through saliva, blood serum, semen, menstrual blood, and vaginal secretions (Sloane, 2002). In the 1990s, transmission among heterosexual partners accounted for 40% of infections, and transmission among men who have sex with men accounted for 15% of infections. Risk factors for infection include having multiple sex partners, engaging in unprotected receptive anal intercourse, and having a history of other STIs (CDC, 2002). The most effective means to prevent the transmission of hepatitis A or B is preexposure immunization. Vaccines are available for the prevention of HAV and HBV, both of which can be transmitted sexually. Every person seeking treatment for an STI should be considered a candidate for hepatitis B vaccination, and some individuals (e.g., men who have sex with men, and injection-drug users) should be considered for hepatitis A vaccination (CDC, 2002).

Clinical Manifestations and Diagnosis

Hepatitis A produces flulike symptoms with malaise, fatigue, anorexia, nausea, pruritus, fever, and upper right quadrant pain. Symptoms of hepatitis B are similar to those of hepatitis A, but with less fever and skin involvement. The diagnosis of hepatitis A cannot be made on clinical manifestations alone and requires serologic testing. The presence of IgM antibody to HAV is diagnostic of acute HAV infection. Hepatitis B is diagnosed by the presence of hepatitis B surface antibody (HBsAg) (CDC, 2002).

Treatment

Unlike other STIs, HBV and HAV are preventable through immunization. HAV is usually self-limiting and does not result in chronic infection. HBV can result in serious, permanent liver damage. Treatment is generally supportive. No specific treatment for acute HBV infection exists.

Nursing Management

Nurses should encourage all women to be screened for hepatitis when they have their annual Pap smear, or sooner if high-risk behavior is identified. Nurses should also encourage women to undergo HBV screening at their first prenatal visit and repeat screening in the last trimester for women with high-risk behaviors (CDC, 2002). Nurses can also explain that hepatitis B vaccine is given to all infants after birth in most hospitals. The vaccination consists of a series of three injections given within 6 months. The vaccine has been shown to be safe and well tolerated by most recipients (CDC, 2002).

Ectoparasitic Infections

Ectoparasites are a common cause of skin rash and pruritus throughout the world. These infections include infestations of scabies and pubic lice. Since these parasites are easily passed from one person to another during sexual intimacy, clients should be assessed for them when receiving care for other STIs. *Scabies* is an intense pruritic dermatitis caused by a mite. The female mite burrows under the skin and deposits eggs, which hatch, causing intense pruritus. The lesions start as a small papule that reddens, erodes, and sometimes crusts. Diagnosis is based on history and appearance of burrows in the webs of the fingers and the genitalia (Youngkin & Davis, 2004). Aggressive infestation can occur in immunodeficient, debilitated, or malnourished people, but healthy people do not usually suffer sequelae.

Clients with pediculosis pubis (pubic lice) usually seek treatment because of the pruritus, because of a rash brought on by skin irritation from scratching, or because they notice lice or nits in their pubic hair, axillary hair, abdominal and thigh hair, and sometimes in the eyebrows, eyelashes, and beards. Infestation is usually asymptomatic until after a week or so, when bites cause pruritus and secondary infections from scratching (Fig. 5-9). Diagnosis is based on history and the presence of nits (small, shiny, yellow, oval, dewdrop-like eggs) affixed to hair shafts or lice (a yellowish, oval, wingless insect) (Breslin & Lucas, 2003).

Treatment is directed at the infested area, using permethrin cream or lindane shampoo (CDC, 2002). Bedding and clothing should be washed in hot water to decontaminate it. Sexual partners should be treated also, as well as family members who live in close contact with the infected person.

Nursing care of a woman infested with lice or scabies involves a three-tiered approach: eradicating the infesta-



• Figure 5-9 Pubic lice. A small brown living crab louse is seen at the base of hairs (*arrow*). (Source: Goodheart, H. [2003]. *Goodheart's photoguide of common skin disorders*. Philadelphia: Lippincott Williams & Wilkins.)

tion with medication, removing nits, and preventing spread or recurrence by managing the environment. Over-thecounter products containing pyrethrins (RID, Triple X, Pronto, and Kwell) are safe for use and kill the active lice or mites. Nurses should provide education about the products as described in Teaching Guidelines 5-3. The nurse can follow these same guidelines to prevent the healthcare facility from becoming infested.

Prevention of Sexually Transmitted Infections

It is not easy to discuss STI prevention when globally we are failing at it. Knowledge exists on how to prevent every single route of transmission, but the incidence continues to climb. Challenges to prevention of STIs include lack of resources and difficulty in changing the behaviors that contribute to their spread. Regardless of the challenging factors involved, nurses must continue to educate and to meet the needs of all women to promote their sexual health. Successful treatment and prevention of STIs is impossible without education. Successful teaching approaches include giving clear, accurate messages that are age-appropriate and culturally sensitive.

TEACHING GUIDELINES 5-3

Treating and Minimizing the Spread of Scabies and Pubic Lice

- Use the medication according to the manufacturer's instructions.
- Remove nits with a fine-toothed nit comb.
- Do not share any personal items with others or accept items from others.
- Treat objects, clothing, and bedding and wash them in hot water.
- Meticulously vacuum carpets to prevent a recurrence of infestation.

Primary prevention strategies include education of all women, especially adolescents, regarding the risk of early sexual activity, the number of sexual partners, and STIs. Sexual abstinence is ideal but often not practiced; therefore, the use of barrier contraception (condoms) should be encouraged.

Secondary prevention involves the need for annual pelvic examinations with Pap smears for all sexually active women, regardless of age. Many women with STIs are asymptomatic, so regular screening examinations are paramount for early detection. Understanding the relationship between poor socioeconomic conditions and poor patterns of sexual and reproductive self-care is significant in diseaseprevention and health-promotion strategies.

Every successful form of prevention requires a change in behavior. The nursing role in teaching and rendering quality healthcare is invaluable evidence that the key to reducing the spread of STIs is through behavioral change. Nurses working in these specialty areas have a responsibility to educate themselves, their clients, their families, and the community about STIs and providing compassionate and supportive care to clients. Some strategies nurses can use to prevent the spread of STIs are detailed in Box 5-3.

Behavior Modification

Research validates that changing behaviors does result in a decrease in new STI infections, but it must encompass all

BOX 5-3

SELECTED NURSING STRATEGIES TO PREVENT THE SPREAD OF STIs

- ✓ Provide basic information about STI transmission.
- ✓ Outline safer sexual behaviors for people at risk for STIs.
- ✓ Refer to appropriate community resources to reduce risk.
- ✓ Screen asymptomatic people with STIs.
- \checkmark Identify barriers to STI testing and remove them.
- ✓ Offer preexposure immunizations for vaccinepreventable STIs.
- Respond honestly about testing results and options available.
- Counsel and treat sexual partners of persons with STIs.
- ✓ Educate school administrators, parents, and teens about STIs.
- Support youth development activities to reduce sexual risk-taking.
- ✓ Promote the use of barrier methods (condoms, diaphragms) to prevent the spread of STIs.
- ✓ Assist clients to gain skills in negotiating safer sex.
- ✓ Discuss reducing the number of sexual partners to reduce risk.

levels—governments, community organizations, schools, churches, parents, and individuals (Miller et al., 2003). Education must address ways to prevent becoming infected, ways to prevent transmitting infection, symptoms of STIs, and treatment. At this point in the STI epidemic, nurses do not have time to debate the relative merits of prevention versus treatment: both are underused and underfunded, and one leads to the other. But being serious about prevention and focusing on the strategies outlined above will bring about a positive change on everyone's part.

Contraception

The spread of STIs could be prevented by access to safe, efficient, appropriate, modern contraception for everyone who wants it. Nurses can play an important role in helping women to identify their risk of STIs and to adopt preventive measures through the dual protection that contraceptives offer. Traditionally, family planning and STI services have been separate entities. Family planning services have addressed a woman's need for contraception without considering her or her partner's risk of STI; meanwhile, STI services have been heavily slanted toward men, ignoring the contraceptive needs of men and their partners.

Many women are at significant risk for unintended pregnancy and STIs, yet with this separation of services, there is limited evaluation of whether they need dual protection—that is, concurrent protection from STIs and unintended pregnancy. This lack of integration of services represents a missed opportunity to identify many at-risk women and to offer them counseling on dual protection (Mantell et al., 2003).

Nurses can expand their scopes in either setting by discussing dual protection by use of a male or female condom alone or by use of a condom along with a nonbarrier contraceptive. Because barrier methods are not the most effective means of fertility control, they have not been typically recommended as a method alone for dual protection. Unfortunately, the most effective pregnancy prevention methods—sterilization, hormonal methods, and IUDs do not protect against STIs. Dual-method use protects against STIs and pregnancy.

KEY CONCEPTS

- Avoiding risky sexual behaviors may preserve fertility and prevent chronic conditions later in life.
- An estimated 65 million people live with an incurable STI and another 15 million are infected each year.
- The most reliable way to avoid transmission of STIs is to abstain from sexual intercourse (i.e., oral, vaginal, or anal sex) or to be in a long-term mutually monogamous relationship with an uninfected partner.
- Barrier methods of contraception are recommended because they increase protection from contact with

urethral discharge, mucosal secretions, and lesions of the cervix or penis.

- The high rate of asymptomatic transmission of STIs calls for teaching high-risk women the nature of transmission and how to recognize infections.
- The CDC and ACOG recommend that all women be offered group B streptococcal screening by rectovaginal culture at 35 to 37 weeks of gestation, and that colonized women be treated with intravenous antibiotics at the time of labor or ruptured membranes.
- Nurses should practice good handwashing techniques and follow standard precautions to protect themselves and their patients from STIs.
- Nurses are in an important position to promote the sexual health of all women. Nurses should make their clients and the community aware of the perinatal implications and life-long sequelae of STIs.

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Web Resources

American College of Obstetricians and Gynecologists (ACOG): (202) 863-2518, http://www.acog.org

American Psychiatric Association: (202) 682-6000, http://psych.org American Society for Reproductive Medicine: (205) 978-5000,

- http://www.asrm.org
- Centers for Disease Control and Prevention: (202) 329-1819, http://www.cdc.gov

CDC National AIDS hotline: 1-800-342-2437

- Herpes Resource Center: www.ashastd.org/herpes/hrc
- National Institute of Mental Health: (301) 443-4513,
- http://www.nimh.nih.gov National Women's Health Resource Center:
 - http://www.healthywomen.org
- National Women's Information Center (NWHIC): 1-800-994-9662, http://www.4women.gov
- Resolve, Inc. (Impaired fertility): (617) 623-0744, http://www.resolve.org

ChapterWORKSHEET

MULTIPLE CHOICE QUESTIONS

- 1. Which of the following contraceptive methods offers protection against sexually transmitted infections (STIs)?
 - a. Oral contraceptives
 - b. Withdrawal
 - c. Latex condom
 - d. Intrauterine device
- 2. In teaching about HIV transmission, the nurse explains that the virus cannot be transmitted by:
 - a. Shaking hands
 - b. Sharing drug needles
 - c. Sexual intercourse
 - d. Breastfeeding
- **3.** A woman with HPV is likely to present with which nursing assessment finding?
 - a. Profuse, pus-filled vaginal discharge
 - b. Clusters of genital warts
 - c. Single painless ulcer
 - d. Multiple vesicles on genitalia
- 4. The nurse's discharge teaching plan for the woman with PID should reinforce which of the following potentially life-threatening complications?
 - a. Involuntary infertility
 - b. Chronic pelvic pain
 - c. Depression
 - d. Ectopic pregnancy
- 5. To confirm a finding of primary syphilis, the nurse would observe which of the following on the external genitalia?
 - a. A highly variable skin rash
 - b. A yellow-green vaginal discharge
 - c. A nontender, indurated ulcer
 - d. A localized gumma formation

CRITICAL THINKING EXERCISE

1. Sally, age 17, comes to the Teen Clinic saying that she is in pain and has some "crud" between her legs. The nurse takes her into the examining room and questions her about her symptoms. Sally states she had numerous genital bumps that had been filled with fluid, then ruptured and turned into ulcers with crusts. In addition, she has pain on urination and overall body pain. Sally says she had unprotected sex with several men when she had been drunk at a party a few weeks back, but she thought they were "clean."

- a. What STI would the nurse suspect?
- b. The nurse should give immediate consideration to which of Sally's complaints?
- c. What should be the goal of the nurse in teaching Sally about STIs?

STUDY ACTIVITIES

- 1. Select a website at the end of the chapter to explore. Educate yourself about one specific STI thoroughly and share your expertise with your clinical group.
- 2. Contact your local health department and request current statistics regarding three STIs. Ask them to compare the current number of cases reported to last year's. Are they less or more? What may be some of the reasons for the change in the number of cases reported?
- **3.** Request permission to attend a local STI clinic to shadow a nurse for a few hours. Describe the nurse's counseling role with patients and what specific information is emphasized to patients.
- 4. Two common STIs that appear together and commonly are treated together regardless of identification of the secondary one are ______ and
- **5.** Genital warts can be treated with which of the following? Select all that apply.
 - a. Penicillin
 - b. Podophyllin
 - c. Imiquimod
 - d. Cryotherapy
 - e. Antiretroviral therapy
 - f. Acyclovir