

Sexually transmitted diseases Review

A. Incidence in the United States: 15 million new sexually transmitted infections occur each year, including 3 million in teenagers. Approximately \$8 billion each year are spent on control of STDs

B. Transmission

1. Is only by intimate physical contact
2. Only transferred to new host when fluids in which they live come in contact with the mucosal surfaces of receiving partner genital or extragenital (rectum, eye or throat)
3. Vertical transmission from mother to fetus common
4. Can not be transmitted by handshake or contaminated toilet seat
5. Most bacteria that cause STDs survive poorly in the environment

C. Control: Simple measures for controlling STDs include **abstinence from sexual** intercourse, a monogamous relationship with an uninfected person, and consistent use of latex or polyurethane condoms.

D. Symptoms that suggest STD:

1. Abnormal discharge from vagina or penis
2. Pain and burning with urination.
3. Sore or blister, painful or non painful, on or around genitals; swelling in the groin.
4. Abnormal vaginal bleeding or unusually severe menstrual cramps.
5. Itching in the vaginal and rectal area.
6. Pain in the lower abdomen in women; pain during sexual intercourse.
7. Skin rash or mouth lesions.

I. Bacterial STDs

A. Gonorrhea, caused by *Neisseria gonorrhoea*, gram negative diplococci. It is still one of the most commonly reported bacterial diseases around 340,000 cases per year. In men the symptoms include painful urination and thick pus draining from the urethra. In women the symptoms tend to be milder and are often overlooked. Expression of different surface antigens allows attachment to different types of cells, but frustrates development of a vaccine. Inflammatory reaction to the infection causes scarring that can partially obstruct the urethra or cause sterility in men and infertility in women. Ophthalmia neonatorum is newborn eye infection.

B. Chlamydial STD infections, caused by *Chlamydia trachomatis* is spherical, obligate intracellular bacterium. This infection is reported more often than any other bacterial disease 800,000 per year. A common cause of sexually transmitted disease of men and women. Symptoms and complications of chlamydial infections are pelvic inflammatory disease (PID) in women, damaging fallopian tubes and promoting sterility or ectopic pregnancy; asymptomatic infections are common and readily transmitted.

C. Syphilis is caused by *Treponema pallidum* slender, motile spirochete, observed under Dark-field microscope, 6,600 cases per year. Primary syphilis (about 3 weeks after infection) is noted by a painless firm ulceration called a hard chancre and local lymph node is enlarged; the organisms multiply and spread throughout the body. In secondary syphilis (2 to 10 weeks), runny nose, watery eyes, aches, pains, sore throat, rash on palm and sole and whitish patches on the mucous membranes, which contain the organisms; a latent period of months or years separates it from tertiary syphilis. Tertiary syphilis is not contagious and is manifest mainly by damage to the eyes, cardiovascular

and central nervous systems. An inflammatory necrotizing mass called a gumma can involve any part of the body. Syphilis in pregnant women can spread across the placenta to involve the fetus (congenital syphilis).

D. **Chancroid** is a **widespread** bacterial STD, but it is not commonly reported 50 cases per year because of difficulties in diagnosis. Caused by *Haemophilus ducreyi*, a small pleomorphic, Gram-negative rod requiring X-factor for growth. Chancroid is characterized by a single or multiple soft, tender genital ulcers and enlarged, painful groin lymph nodes.

II. **Viral STDs** are at least as common as bacterial STDs but they are **not yet curable**.

A. **Genital herpes simplex** is a very common disease estimated 45 million infected about 85% HSV type 2. Caused by herpes simplex type 2, important because of the discomfort and emotional trauma it causes, newborn can acquire this from mother, its potential for causing death in newborn infants, its association with cancer of the cervix and the increased risk it poses for HIV infection and AIDS. Symptoms may include a group of vesicles with itching, burning or painful sensations, which break leaving a superficial ulcer. Local lymph nodes enlarge. Many have few or no symptoms; some have painful recurrences. The virus establishes a latent infection in sensory nerves; it can be transmitted in the absence of symptoms, but the risk is greatest when lesions are present.

B. **Papillomavirus STDs** are small, non-enveloped, double stranded DNA viruses. Estimated 40 million Americans infected. Disease is more prevalent than any other kind of STD. They are manifest as warts on or near the genitalia and as precancerous lesions. The latter are asymptomatic and can only be detected by medical examination. They are associated with cervical cancer type.

C. **AIDS** is the end stage of disease caused by human immunodeficiency virus type 1 (HIV-1). Single stranded RNA virus belongs to retroviridae family. Estimated 40,000 new cases per year. The virus infect CD4+ lymphocytes and macrophages and slowly destroy the ability of the immune system to fight infections and cancers. HIV disease is usually first manifest as a flu-like illness that develops about six weeks after contracting the virus. An asymptomatic interval follows that typically lasts almost ten years during which the immune system is slowly and progressively destroyed. Unusual cancers (Kaposi's sarcoma, cervical and anal cancer, B-lymphocytic tumors of the brain) and infectious diseases (Pneumocystosis, Toxoplasmosis, Cytomegalovirus and Mycobacterial) then herald the onset of AIDS. No vaccine or medical cure is yet available, but spread of infection could be significantly slowed by consistent use of condoms and employment of sterile needles by injected-drug abusers. A marked reduction in mother to newborn transmission can be achieved with medication. Treatment is reverse transcriptase and protease inhibitors in combination.

III. **Protozoan STDs**: Intestinal protozoan diseases such as giardiasis and cryptosporidiosis are transmitted by the fecal-oral route in those individuals who engage in oral genital and anal contact as part of sexual activity.

A. Trichomoniasis ("trich") is caused by *Trichomonas vaginalis* a flagellated protozoan. Estimated 5 million Americans are infected per year. This is often an asymptomatic disease, may produce symptoms that include itching, burning, swelling and redness of the vagina, with frothy, sometimes smelly, yellow-green discharge and burning on urination. Men have discharge from the penis, burning on urination, sometimes accompanied by painful testes and tender prostate gland.

