STD 101

The tables below provide information about the most common sexually transmitted diseases (STDs). Each table includes the STD's signs and symptoms IF PRESENT, treatment, HIV interrelationship issues, and prevention information. You can also find a glossary at the end of this document with definitions of terms, along with a list of Web sites where you can go for more information about STDs and HIV.

Bacterial Infections

These STDs are curable with antibiotics (medications that kill bacteria).

STD	Chancroid—Infects external genital tissue
Complications	Swollen glands may burst and drain; sores get quite large on genitals
Transmission	Contact between (mouth, penis, vagina, rectum) and chancroid ulcer on penis, vagina, or rectum or chancroid germs in mouth
Signs/Symptoms	Painful genital or anal area sores (ulcers) with a small amount of yellowish discharge; may also have swollen, painful glands in groin area
Treatment	Antibiotic: Ceftriaxone injection *OR* azithromycin tablets—provided in a one-time dose
Prevention Concerns	Condoms can help prevent infection, but may not cover all of the infected sites
Comments	Significantly increases chances of getting or giving HIV to a sexual partner

STD	Chlamydia—Infects pink parts inside urethra, rectum, etc.
Complications	• Females: Pelvic inflammatory disease (infected uterus, tubes) and infertility • Males: Proctitis and epididymitis (infection in the rectum or testicles) and infertility • Can also infect the eyes
Transmission	Contact between pink parts (mouth, urethra, vagina, rectum) and infected discharge from penis or vagina or rectum
Signs/Symptoms	Often there are no obvious signs/symptoms; females and males can be infected for years and not know it • Females: May have abnormal vaginal discharge (yellowish or sometimes bloody), later on may develop lower abdominal pain • Males: May have urethral discharge (whitish) and/or burning, later on may have pain in testicle area
Treatment	Antibiotic: Usually a tetracycline (e.g., doxycycline) in tablet form *OR* azithromycin tablets *OR* ofloxacin *OR* levofloxacin
Prevention Concerns	Condoms are very effective in prevention because it is transmitted by genital secretions; oral sex can result in transmission of chlamydia
Comments	Increases chances of getting or giving HIV to a sexual partner

STD	Gonorrhea—Infects pink parts inside throat, urethra, rectum, and vagina; can infect mucous membranes around eyes
Complications	• Females: Pelvic inflammatory disease (infected uterus, tubes) and infertility • Males: Proctitis and epididymitis (infection in the rectum or testicles) and infertility
Transmission	Contact between pink parts (mouth, urethra, vagina, rectum) and infected discharge from penis, vagina, or rectum
Signs/Symptoms	May be no obvious signs/symptoms, particularly for females • Females: May have abnormal vaginal discharge (greenish), later on may develop lower abdominal pain • Males: May have urethral discharge (greenish) and/or burning, and later on may develop pain in testicle • This infection often occurs together with chlamydia
Treatment	Antibiotic: Ceftriaxone injection *OR* cefixime tablet—a one-time dose, usually accompanied by another medication (such as doxycycline or azithromycin *OR* ofloxacin *OR* levofloxacin) for 7 days to cover for coexisting chlamydia infection
Prevention Concerns	Condoms are very effective to prevent transmission because genital secretions transmit gonorrhea; oral sex can result in transmission of gonorrhea
Comments	Increases chances of getting or giving HIV to a sexual partner

STD	Trichomoniasis—Actually a protozoan infection but is curable with antibiotics, just like bacterial STDs
Complications	See Signs/Symptoms
Transmission	Contact between some of the pink parts (only the vagina or urethra) and infected discharge from penis or vagina
Signs/Symptoms	• Females: May have greenish-yellowish vaginal discharge—sometimes with a foul odor—accompanied by vaginal itching; if it enters the urethra and bladder, it may cause urinary burning and frequent urination • Men: Usually few or no symptoms; occasionally have urethral burning and rarely, whitish urethral discharge (if present, only a small amount)
Treatment	Metronidazole tablets—either several at one time or fewer at a time over the course of a week
Prevention Concerns	Condoms are very effective to prevent transmission
Comments	Increases chances of getting or giving HIV to a sexual partner

STD	Syphilis—Infects genital tissue of penis, rectum, vagina, and mouth and then goes into lymph system, bloodstream, and brain fluid, very much like HIV
Complications	Neurosyphilis—infection of the brain; also, syphilis can be passed to babies and these babies will have many problems; over time, tertiary syphilis can develop, which is often fatal
Transmission	• Contact between pink parts (mouth, urethra, vagina, rectum) or skin and infected ulcer or lesions of the mouth, penis, vagina, or rectum • In gay men, syphilis is easily spread by oral sex as well as rectal sex
Signs/Symptoms	Most have no obvious signs/symptoms—need a blood test to tell if you have syphilis There are different stages of syphilis: • Primary: May have painless ulcer (called chancre) at site where infection occurred (mouth, anus, genitals) • Secondary: May have body rash, wartlike genital/anal lesions; patches on mucous membranes • Latent: A person is infected and can pass syphilis to others but has no symptoms; similar to asymptotic stages of HIV • Tertiary: Occurs after many years: dementia, blindness, scattered body ulcers, balance problems

STD	Syphilis—Infects genital tissue of penis, rectum, vagina, and mouth and then goes into lymph system, bloodstream, and brain fluid, very much like HIV (continued)
Treatment	Antibiotic: Long-acting benzathine penicillin injections (one to three over 1 to 3 weeks), depending on stage; even though the syphilis can be cured in the tertiary stage, the signs/symptoms will not likely be reversed
Prevention Concerns	Condoms can help prevent syphilis infection, but condoms do not always cover the areas of infected sores or other infected areas; also, syphilis is easily spread by oral sex and condom use could prevent this
Comments	Significantly increases chances of getting or giving HIV to a sexual partner; often is passed together with HIV; about 50% of gay men with early syphilis these days also have HIV infection

VIRAL INFECTIONS

These STDs are not curable but can be treated to help manage symptoms.

STD	Herpes Simplex Virus (HSV)—Infects external genital tissue and the rectum; permanent infection with intermittent flare-ups (or recurrences) of genital sores; there are also times in which there are no flare-ups, but a person can still pass HSV to a sexual partner
Complications	Proctitis (painful infection of the rectum), infections of the eye; also can cause severe illness or death in a newborn
Transmission	Contact between pink parts (mouth, urethra, vagina, rectum) or skin and infected ulcers or lesions of the mouth, penis, vagina, or rectum
Signs/Symptoms	• Many people have no obvious symptoms (up to 70% of those infected) • If symptoms do occur, they could include painful, itchy, or tingly sores in the genital or anal area; these sores start out as small pink bumps, then these become small blisters, then they usually break and become crusted (scabbed); these lesions often occur in small clusters; there may also be swollen glands in groin area There are 2 different strains of HSV: • HSV 1, which primarily affects the tissue around the mouth and can infect the genitals though oral sex • HSV 2, which primarily affects the tissue around the genitals/anal area and can infect the mouth through oral sex
Treatment	• Antiviral medication—there are three oral medications but they are similar (in different formulations): acyclovir, famciclovir, and valacyclovir • For people with repeated recurrences (usually considered more than three per year), these medications can be taken every day to reduce outbreaks
Prevention Concerns	• Condoms can prevent infection, but condoms do not always cover all the potentially infected sites; oral sex can result in transmission of HSV • Transmission of HSV can occur even when no sores are visible
Comments	Significantly increases chances of getting or giving HIV to a sexual partner

STD	Human Papilloma Virus (HPV)
Complications	HPV causes some genital cancers—cervical cancer in women and penile/anal cancer in men
Transmission	Contact between skin and infected pink parts (penis, vagina, mouth, rectum)
Signs/Symptoms	• Most people have no obvious bumps (warts); if warts do appear, they are usually painless; occasionally they may be slightly itchy or tingly • For those with the infection, but no visible lesions, there are no signs/symptoms • There are no good tests for HPV; if warty lesions are seen, then a diagnosis of genital HPV may be made; a Pap smear (which is a test for cervical cancer) can reliably detect evidence of HPV even when there are no visible lesions; anal Pap smears are sometimes used to test for HPV in men
Treatment	The body's immune system will fight HPV but it may never eliminate the virus; there are several treatments, all designed to stimulate the immune system to work harder against the HPV; treatments include patient-applied prescription medications (imiquimod *OR* condylox) and/or provider-applied treatments (mild acid, freezing treatments, laser)
Prevention Concerns	• Condoms can prevent infection, but condoms do not always cover all parts of the genitals infected with HPV; oral sex can result in transmission of HPV • Transmission of HPV can occur even when no sores are visible
Comments	If lesions are inflamed, this could increase susceptibility to HIV

STD	Viral Hepatitis—There are several types, each with a letter designation
Three Types of Viral Hepatitis	• Hepatitis A Virus (HAV) • Hepatitis B Virus (HBV) • Hepatitis C Virus (HCV) There are a few others, but they are not common in the United States
Complications	HBV can become chronic and, if it does, it can lead to the development of liver cancer or severe liver failure (usually after many years); likewise, HCV can lead to liver cancer or severe liver failure
Transmission	• HAV: Transmitted by touching food or one's mouth with hands that have been contaminated with fecal material (poor handwashing after using the bathroom); for gay men, rimming or any anal-oral contact is a common way to get HAV • HBV: Transmitted by blood or body fluids (even saliva); easily transmitted by sharing needles/works and through sexual activities (possibly even by kissing) • HCV: Transmitted through blood and body fluids, thus by sharing needles/works and through sexual activity (the mechanism for sexual transmission is unclear)

STD	Viral Hepatitis—There are several types, each with a letter designation (continued)
Signs/Symptoms	• HAV: If symptomatic, may have flulike symptoms and abdominal pain, often with nausea and vomiting, and skin may have yellowish discoloration (called jaundice) • HBV and HCV: Often do not have clear signs/symptoms during the acute illness; if there are signs/symptoms, they would be similar to HAV, noted above • If infected with chronic HBV or HCV, it is important to be in care, so that signs and symptoms of liver cancer or failure can be detected (care would include blood tests to assess liver function; also sometimes a liver biopsy) • If there is liver cancer or failure, there is usually abdominal pain, jaundice, and swelling of the abdomen (but all these may occur only after either problem is advanced)
Treatment	• Testing is by a blood test specific to the different hepatitis viruses (HAV, HBV, HCV) • The body's immune system will fight HAV and it will eliminate the virus; most people feel sick for a few weeks, but recover without problems • Chronic HBV or HCV treatments might not be treated, or can possibly be treated with interferon injections and ribaviron (pills)—each for many months; treatment failure occurs with many people • The other treatment for HCV if the liver is damaged and/or if medication did not work is liver transplant • There are vaccines for HAV and HBV—thus, prevention through vaccination is possible; there is no vaccine for HCV
Prevention Concerns	• Condoms can prevent infection, but condoms do not always cover all parts of the genitals infected with HPV; oral sex can result in transmission of HPV • All gay men should get HBV vaccine and HAV vaccine • Not sharing personal hygiene items (e.g., razors, toothbrushes) can prevent transmission of HBV and HCV; also, tattooing only with a sterile technique is preventive • Good handwashing is needed to prevent spread of HAV as well as the other types • HAV can be transmitted through oral-anal sexual practices, thus a barrier (e.g., dental dam) can help to prevent transmission • Condoms may help to prevent HBV and HCV infection because these infections are in blood and body fluids • Avoiding sharing needles/works is one of the most important ways to prevent HCV and will also help to prevent the spread of HBV (and even HAV)
Comments	None

GLOSSARY OF TERMS

Term	Definition
Antibiotic	A type of medication that kills bacteria (and occasionally other types of germs, including protozoa)—it may be given as a pill or as an injection. Antibiotics work in different ways on different germs. To work, the right antibiotic needs to be matched to the right germ.
Bacteria	A type of germ that is self-reproducing and can be killed by the right antibiotic medicine.
Cervical Secretions	The cervix produces mucus (discharge), which changes over the course of the menstrual cycle. This mucus goes into the vagina. A female normally has discharge in the vagina, which is from the cervix. Cervico-vaginal secretions are normally clear to whitish and do not have an odor.
Cervix	The lower end of the uterus (womb), which is found at the inside end of the vagina. It is where menstrual flow leaves the uterus and where sperm find access to the uterus. It is also the part of the uterus that must dilate (open) for the passage of a baby at childbirth. Many STDs can cause infection of the cervix (e.g., chlamydia, gonorrhea, HPV), which can lead to infections of the uterus, complications in pregnancy, and infections in newborns.
Congenital	Born with (e.g., a congenital infection means that a baby was born with the infection).
Hepatitis	Inflammation of the liver. It can be caused by infection (e.g., HAV, HBV, HCV) or by chemicals (e.g., medications and illegal drugs).
Inflammation	A bodily response to some irritant, injury, or infectious germ. Inflammatory responses include an increase in different types of white blood cells at the surface of the mucous membranes, which leads to swelling, redness, increased heat, and pain (pain may not always be apparent).
Jaundice	A yellowish discoloration of the skin, mucous membranes, and the sclera (white parts of the eye). Jaundice occurs when the liver is inflamed or malfunctioning and the bile (which is normally processed by the liver) builds up in the system.
Mucous Membrane (pink parts)	Pink, moist tissue that lines the rectum, mouth, vagina, and inside of the penis. Different types of cells line the mucous membranes (some of these cells are called squamous, which are closer to the outer surface of the body, and others are called columnar, which are deeper within). Some STDs infect either one or both types of mucous membrane cells, and some STDs can only infect one or the other.
Mucus	The clear, stretchy discharge produced by mucous membranes to provide moisture and protection (it contains natural killer cells, antibodies, and protective white blood cells).

Term	Definition
Pap Smear	A test for cancer of the cervix, not for STDs. However, the Pap smear test can detect HPV infections. When a female has a routine pelvic examination, the usual purpose is to collect the Pap smear and to examine the uterus and ovaries. Most health care providers do not routinely do STD testing during the pelvic examination. If STD screening is desired, it may need to be requested.
Protozoa	Germs that are actually single-celled life forms that can cause human diseases. Antibiotics can cure many protozoan infections.
Red Blood Cell (RBC)	One type of cell in the bloodstream whose function is to transport oxygen and carbon dioxide throughout the body.
Semen	The fluid that comes out of the penis when a male ejaculates. Semen consists of sperm, certain types of white blood cells (see below), and mucus.
Serum (also called plasma)	The fluid part of the blood. It contains many minerals (e.g., sodium or potassium), different kinds of protein, antibodies, and may contain infection (e.g., HIV or HCV).
Urethra	The tube inside of the penis that urine comes out of during urination. This tube goes from the penis through the prostate gland to the bladder and then down to the testicles. Therefore, when a male "comes" (ejaculates), the semen passes through the urethra. The urethra is lined with mucous membranes that can be infected with some STDs.
Vertical Transmission	Transmission of an infection from a pregnant woman to an unborn embryo or fetus.
Viral Load (a test)	Viral infections that can be detected in the blood (e.g., HIV or HCV is often tested to actually count the amount of virus present in the blood). For HIV, HBV, and HCV, the viral load studies are done on the serum (also called plasma) portion of the blood (i.e., not the blood cells).
Virus	A type of germ that is unable to reproduce without the help of a host cell because it does not generate all of the genetic material it needs to reproduce. The host may be a human, plant, or animal cell. Antibiotics cannot destroy viruses, although there are some medications for some viruses.
White Blood Cell (WBC)	Type of cell in the bloodstream. There are many different kinds of WBCs, including those that have CD-4 receptors (the receptor to which HIV connects). The main function of all the WBCs is to fight infection and other irritants in the body. Under most circumstances, WBCs are also present in other body fluids (e.g., semen or cervico-vaginal secretions). Body cavities (e.g., nose, mouth, or genital cavities) will also usually contain a small number of specific types of WBCs. They would be in these cavities to be ready to destroy foreign bodies, such as infectious germs, dusts, or other irritants.

HIV AND STD INFORMATION WEB SITES

Web Site	Information	Comments
http://www.AIDSinfo.nih.gov	Current information on treatment, clinical trials, vaccines	Sponsored by the National Institutes of Health (NIH); many links provided
http://chipts.ucla.edu/	Information on treatment, prevention, programs	Sponsored by the University of California
http://www.caps.ucsf.edu	Information on treatment, prevention, programs	Sponsored by the University of California
http://www.cair.mcw.edu	Information on treatment, prevention, programs	Sponsored by the University of Wisconsin
http://www.cdc.gov/nchhstp/std	Consumer fact sheets, current prevention research, health and disease information, search for STD and for HIV prevention	Sponsored by the Centers for Disease Control and Prevention (CDC)
http://www.effectiveinterventions.org	Training information for prevention and clinical providers on prevention interventions from CDC	Sponsored by CDC
http://www.urmc.rochester.edu/chbt	Training and care information for prevention and clinical providers on STD and HIV care and prevention	Sponsored by University of Rochester, with funding from CDC and AIDS Institute (New York State Department of Health), and Monroe County Department of Health, New York
http://www.hivguidelines.org	Current information on treatment, clinical trials	Sponsored by New York State Department of Health—AIDS Institute
http://www.aidsetc.org	Training and care information for clinicians on HIV care	Sponsored by Health Resources and Service Administration (HRSA)
http://www.cdc.gov/mmwr/	Current information on national guidelines for STD, HIV, and hepatitis (as well as many other topics)	Sponsored by CDC (provides medical and nursing continuing education credits/units)
E-mail: HIVpubs@health.state.ny.us	Information on publications, consumer fact sheets, guidelines	Sponsored by AIDS Institute (New York State Department of Health)