



MODULE 3

FLORIDA DEPARTMENT OF HEALTH

STUDY GUIDE

HIV/AIDS: 101

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OTHER SEXUALLY TRANSMITTED DISEASES AND THEIR CONNECTION TO HIV

Like HIV, sexually transmitted diseases (STDs)—also called sexually transmitted infections (STIs)—are contracted principally through sexual intercourse. We'll focus on various infectious diseases that individuals are likely to encounter while working with clients who are either HIV positive or at risk.

Because of the established links between many of these diseases and HIV infection—and because of the high co-morbidity rates and overlapping risk factors—individuals should become familiar with the signs and symptoms, modes of transmission, and risk factors associated with each of the diseases.

HIV Co-Factors

Bacteria and viruses that are transmitted from person to person are often linked to HIV, and are better known as HIV co-factors. A co-factor is something that may assist with transmission and speed up disease processes. HIV co-factors include STDs, tuberculosis (TB) and viral hepatitis. By learning about these diseases, individuals can decrease their risk of acquiring them and prevent further transmission if infected.

SEXUALLY TRANSMITTED DISEASES

Sexually Transmitted Diseases (STDs) are infections that are transmitted from one person to another during vaginal, anal and oral sex. The CDC estimates that 19 million new cases of STDs occur annually, with a direct medical cost of 13 billion dollars. In addition, STDs are the most common infectious diseases in the United States (CDC 2004 STD Surveillance Report).

Common STDs: Over 20 STDs have been identified. Some of the more common ones include Chlamydia, gonorrhea, syphilis, genital herpes, human papillomavirus (genital warts) and trichomoniasis. HIV and hepatitis A, B and C are examples of sexually transmitted diseases as well, but also have additional modes of transmission.

Signs and symptoms: Typical signs and symptoms of STDs include a discharge from the penis or vagina, pain upon urination (more often men), lower abdominal pain (women), and lesions or blisters on or around the genital area. Unfortunately, STDs are often asymptomatic (no detectable symptoms). Even when an STD causes no symptoms, a person who is infected is able to pass the disease on to their sex partner(s). In addition, more than one STD can be present and passed on at the same time.

Treatment: Some STDs can be treated and cured with antibiotics. For others, such as herpes and HIV/AIDS, there is no cure, but there are medications available to assist in managing the disease. Treatment of STDs can also be an effective tool in preventing the spread of HIV. Treating STDs in HIV-infected individuals decreases both the amount and how often HIV is shed. It also decreases the ability to transmit HIV. Detecting and treating STDs can substantially reduce HIV transmission at the individual and community levels.

Complications: If left untreated, STDs can cause serious medical problems like infertility, cardiovascular and neurological disorders, birth defects and even death.

THE ESTABLISHED LINK BETWEEN STDS AND HIV INFECTION

Increased susceptibility: STDs may increase susceptibility to HIV infection. Genital ulcers caused by syphilis, herpes or chancroid, result in breaks in the genital tract lining or skin, creating portals of entry for HIV. Non-ulcerative STDs—such as Chlamydia, gonorrhea, and trichomoniasis—increase the concentration of immune cells in genital secretions that can serve as targets for HIV.

Increased infectiousness: Evidence suggests that STD-infected individuals are at least two to five times more likely than uninfected individuals to acquire HIV if they're exposed to the virus through sexual contact. In addition, HIV infected individuals who also have an STD are more likely to transmit HIV through sexual contact than someone who is HIV negative.

HIV-positive individuals infected with other STDs are more likely to have HIV in their genital secretions. For example, men who are infected with both gonorrhea and HIV are more than twice as likely to shed HIV in their genital secretions as are those who are infected only with HIV. Moreover, the median concentration of HIV in semen is as much as ten times higher in men who are infected with both gonorrhea and HIV than in men infected only with HIV.

CHLAMYDIA

Symptoms: Symptoms may show up 7-21 days after sex. Most women and some men have no symptoms.

- Men: Watery, white drip from the penis. Burning or pain when urinating.
- Women: Discharge from the vagina between periods. Burning or pain during urination. Pain in the abdomen (belly), sometimes with fever and nausea.

Complications: Untreated, Chlamydia may lead to more serious infections, such as Pelvic Inflammatory Disease (PID) 10-15% of the time. Reproductive organs can be damaged, as well. Both men and women may no longer be able to have children, and a mother with Chlamydia can give it to her baby during childbirth.

GONORRHEA (CLAP, DRIP, GC)

Symptoms: Symptoms may show up 2-21 days after having sex; 1-14 days for men. Most women and many men have no symptoms.

- Men: Thick yellow or white drip from the penis. Burning or pain during urination or during a bowel movement.
- Women: Thick yellow discharge from the vagina. Burning or pain during urination or during a bowel movement. More pain than usual during periods. Cramps and pain in the lower abdomen.

Complications: Untreated, gonorrhea may lead to more serious infection. Reproductive organs can be damaged. Both men and women may no longer be able to have children, and a mother with gonorrhea can give it to her baby during childbirth. Gonorrhea can also cause heart trouble, skin disease, arthritis and blindness.

SYPHILIS (SYPH, THE POX)

Symptoms: There are three stages of syphilis, each with unique symptoms.

- Primary stage: Symptoms may show up 1-12 weeks (average of 21 days) after having sex, usually as a chancre (reddish-brown sore) lasting 3-6 weeks. Symptoms go away, but the disease will progress to its secondary stage.
- Secondary stage: 2-10 weeks after the sore appears, a rash forms anywhere on the body. Flu-like feelings occur. The sore, rash, and flu-like feelings go away, but the disease will progress to Latent Stage syphilis.

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- Latent stage: Begins when primary and secondary symptoms disappear. Most of the time there are no symptoms. Latent stage syphilis develops in about 15% of the people who have not been treated, and it can appear 10-20 years after the infection was first acquired. In the latent stage, syphilis may damage internal organs, brain, nerves, eyes, heart, blood vessels, liver, bones and joints. Signs and symptoms include difficulty with muscle movements, paralysis, numbness, gradual blindness, and dementia. Death may result.

Complications: Individuals in primary stage syphilis are highly infectious. A mother with syphilis can give it to her baby during childbirth. The disease may cause heart disease, brain damage, blindness and death.

HUMAN PAPILLOMAVIRUS (HPV), ALSO KNOWN AS GENITAL WARTS

Symptoms: In many cases, HPV produces no symptoms. When they do occur, the most common symptom is the presence of warts in the genital area. Signs of infection can appear 1-6 months or more after sex. Over 30 types of HPV can be transmitted sexually. HPV is one of the most common sexually transmitted diseases (STDs).

- Men: If symptoms appear, genital warts can show up on the penis, scrotum, groin or thigh. Genital warts can be raised or flat, single or multiple, small or large, and are sometimes cauliflower-shaped. Precancerous changes in the penis or anus can occur with certain types (high-risk) of HPV infection. Certain types of HPV infection can result in anal or genital cancer if not detected early.
- Women: If symptoms appear, genital warts can show up on the vulva, in or around the vagina or anus or on the cervix. Genital warts can be raised or flat, single or multiple, small or large, and are sometimes cauliflower-shaped. Precancerous changes in the cervix, vulva, or anus can occur with certain types (high-risk) of HPV infection. Certain types of HPV infection can result in cervical cancer if not detected early. Regular pap tests can identify abnormal cell changes within the cervix. Most women are not aware they have been infected due to lack of symptoms.

Complications: Genital HPV is spread through direct skin-to-skin contact with someone who has an HPV infection. Contact includes vaginal, anal, and oral sex. A mother with genital warts can give them to her baby during childbirth. Over 30 types of HPV can be transmitted sexually, some of those being high-risk types that may lead to precancerous conditions of the cervix.

HERPES

Symptoms: Symptoms show up 2 - 30 days after having sex. Most women and many men have no symptoms, but may experience flu-like feelings. Small, painful blisters may appear on the sex organs or mouth. Itching or burning may occur before the blisters appear. The blisters last 1 - 3 weeks. While the blisters will go away, the individual still has herpes, and the blisters can come back.

Complications: The disease spreads by having vaginal, anal, and/or oral sex with someone who has herpes. There may be 4-5 occurrences the first year, but, over time, the frequency may decrease.

HEPATITIS

Viral hepatitis includes three diseases: hepatitis A, hepatitis B, and hepatitis C, each of which has significant importance to people at risk for HIV, those infected with HIV, and those living with AIDS.

The risk factors for infection with the hepatitis viruses are similar to the risk factors for HIV infection. In addition, people infected with HIV tend to experience the more severe consequences of hepatitis infection.

HEPATITIS A

Hepatitis A is a virus that causes inflammation of the liver. There is no chronic infection associated with hepatitis A.

Modes of transmission: Hepatitis A is found in feces and in the intestinal tract, and can be spread by eating contaminated food prepared by an infected person who did not wash their hands properly; having anal/oral sex; eating contaminated shellfish; or drinking contaminated water. The hepatitis A virus is rarely transmitted via the blood-borne route, and is never transmitted through the air or by casual contact such as coughing, sneezing or being in the same area as an infected person.

The virus can be spread to others 2 weeks prior to jaundice. However, infectivity decreases soon after symptoms begin.

Symptoms: The incubation period for hepatitis A is 15 to 50 days, with an average of 28 days. While children who contract hepatitis A usually have no symptoms, adults usually become very ill and display the common hepatitis symptoms described in this section.

Treatment: There is no specific treatment for hepatitis A—only the management of symptoms. The infection will clear up within a couple of months, and the patient will be immune to the virus. About 1 in 100 persons infected with hepatitis A will develop severe infection that may require a liver transplant, especially among those co-infected with chronic hepatitis B, chronic hepatitis C or HIV/AIDS.

HEPATITIS B

Hepatitis B is a virus that causes inflammation of the liver. Acute or chronic infections are possible when someone is infected with the hepatitis B virus. The chronic infection may lead to cirrhosis and an increased risk for liver cancer.

Modes of transmission: Hepatitis B is found in blood, seminal fluids, vaginal secretions, and other body fluids.

The virus can be spread by unprotected sexual contact with an infected person, especially among people with multiple sex partners or men who have sex with men (MSM). The virus can also spread via household contact with an infected person; occupational exposure through an accidental needle stick; contact with contaminated needles, especially injection drug equipment. Other items such as tattoo and body piercing instruments, razors and toothbrushes may be contaminated with infected blood. Also, an infected mother can spread the disease to her infant during delivery.

The hepatitis B virus is not an airborne virus, and is never transmitted through casual contact such as coughing, sneezing, being in the same area as an infected person or by consuming contaminated food or water.

Symptoms: The incubation period for hepatitis B is 6 to 24 weeks, with an average of 8 to 12 weeks.

Treatment: There are two medications available to treat chronic hepatitis B.

- Interferon Alfa (IFN) is approved for children and adults. IFN is given to patients who have an infection lasting greater than six months, and who have elevated liver enzymes and an actively-dividing virus in their blood. Approximately 40 percent of patients will respond to the therapy.
- Pegylated Interferon is approved only for adults and is given by injection once a week for six months to a year. Pegylated Interferon includes the following medication:
 - Lamivudine
 - Adefovir Diplovoxil
 - Entecavir
 - Telivudine
 - Tenofovir

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Pregnancy and perinatal issues: Pregnant women who have the hepatitis B virus can pass the virus to their baby during delivery. Without any intervention, 85–90 percent of the babies born to hepatitis B-positive mothers will become chronically infected with the virus.

HEPATITIS C

Hepatitis C is an inflammatory liver disease caused by the hepatitis C virus. In 1988, hepatitis C was discovered to be the primary cause of non-A and non-B hepatitis. Prior to 1992, there was no adequate test implemented for the detection of specific hepatitis C antibodies. There are acute and chronic infections associated with hepatitis C. Chronic hepatitis C can lead to cirrhosis and liver cancer.

Modes of transmission: Hepatitis C is found in blood, and it can be spread by sharing injection drug equipment; having a blood transfusion or organ transplant before 1992; receiving clotting factor concentrates before 1987; by an infected mother spreading the disease to her infant during delivery; occupational exposure through a needle stick; sexual contact (infrequent).

No scientific studies show an association of hepatitis C exposure resulting from the following: medical, surgical or dental procedures, tattooing, acupuncture, ear piercing, foreign travel or military service.

Symptoms: The incubation period can vary from 2 to 26 weeks, with an average between 6 to 9 weeks.

Treatment: Treatment options for hepatitis C are determined by blood tests, biopsy results and other factors, and are not based solely on the presence of symptoms, since the disease is typically asymptomatic. Types of treatment include the following:

- Interferon: injectable medication given once or more per week based on age.
- Pegylated Interferon: a form of interferon, given once a week. The pegylation of the interferon delays clearance rate in the body, and maintains higher interferon levels in the blood. Pegylated interferon medication includes Ribavirin, Baceprevir and Telaprevir.

HCV/HIV CO-INFECTION

HCV/HIV co-infection means a person is infected with both the hepatitis C virus (HCV) and HIV. There are an estimated 400,000 people co-infected with HCV/HIV in the United States. Injection drug use seems to increase the risk of co-infection. In fact, it's estimated that 60–90 percent of people who contracted HIV from injecting drug use also have HCV.

Similarities between HCV and HIV include high levels of viral replication as well as a chronic infection that can persist for many years. Also, most people do not experience symptoms early in the course of either infection.

How HCV and HIV Affect One Another: Because HIV diminishes the ability of the immune system to fight off infection, it speeds up the rate of liver damage caused by HCV. This places the co-infected patient at a greater risk for cirrhosis, liver cancer and liver failure than people infected with HCV alone.

One of the functions of the liver is to process medications. It's very important that a patient co-infected with HCV/HIV is aware of how to take care of his or liver.

TUBERCULOSIS

Tuberculosis (TB) is a disease caused by bacteria called *Mycobacterium tuberculosis*. TB is spread from person to person through the air, and it usually attacks the lungs. The bacteria are put into the air when a person with TB disease coughs or sneezes. People nearby breathe in these bacteria and become infected. TB can also move from the lungs through the blood to other parts of the body, such as the kidney, spine, and brain.

Symptoms: General symptoms of TB include feeling weak or sick, weight loss, fever and/or night sweats.

Symptoms of TB of the lungs may include cough, chest pain, and/or coughing up blood.

Other symptoms depend on the particular part of the body that's affected. People who are infected with latent TB infection do not feel sick, do not have any symptoms, and cannot spread TB. However, they may develop TB disease at some time in the future. A person can have latent TB infection for years without any signs of disease, but if that person's immune system gets weak, the infection can quickly turn into TB.

Also, if a person with a weak immune system spends time with someone with infectious TB, he or she may become infected with TB bacteria and quickly develop the disease.

Treatment: People with TB can be treated and cured with appropriate medication. People who have latent TB infection but are not yet sick can take medicine so that they'll not develop TB. A TB skin test is the only way to find out if a person has latent TB infection.

This test is recommended for the following people:

- Individuals who have spent time with a person with known or suspected TB disease
- HIV-infected individuals
- People with immune-compromising conditions and diabetes
- People who have symptoms of TB disease
- People from a country where TB disease is very common
- People who inject drugs
- People living in shelters, migrant camps, prisons and jails, as well as, in some instances, nursing homes.

Treatment: The medicine usually used for the treatment of latent TB infection is a drug called isoniazid or INH. INH kills the TB bacteria that are in the body and, when taken correctly, keeps individuals with latent TB infection from developing TB disease.

Established Link between TB and HIV: TB is the cause of death for one out of every three people with AIDS worldwide, making it the leading cause of death among people infected with HIV.

Since HIV weakens the immune system, people with latent TB infection and HIV infection are at very high risk of developing TB disease. In fact, individuals who are infected with HIV and TB have a 100 times greater risk of developing active TB disease and becoming infectious compared to people not infected with HIV.

CDC estimates that 10-15 percent of all TB cases—and nearly 30 percent of cases among people ages 25 to 44—are occurring in HIV-infected individuals. In addition, people with HIV/AIDS are at greater risk of developing multi-drug-resistant TB, a form of TB that does not respond to the typical regimen of medications and is often fatal (The Deadly Intersection Between TB and HIV, 1999).

All HIV-infected people should be tested periodically for TB to find out if they have latent TB infection. If they have latent TB infection, they need treatment as soon as possible to prevent them from developing TB disease. If they have TB disease, they must take medicine to cure the disease. TB can be prevented and cured, even in people with HIV infection.