

Course RPD1018 – Sexually Transmitted Diseases

Sexually Transmitted Diseases, or STDs, are caused by a bacterial infection, viral infection, or parasite infection that is passed from one person to another during sexual contact. This sexual contact can involve vaginal, oral, or anal sex. Some STDs can also be passed to another person through other means, such as through blood transfusions or from an infected mother to her baby during pregnancy or childbirth.

STDs are very common, especially among young people ages 15 to 23. There are about 19 million new cases of STDs in the U.S. each year, according to the CDC.

There are many STDs, including Chlamydia, HIV/AIDS, syphilis, chancroid, pubic lice, HPV, trichomoniasis, genital warts, gonorrhea, and genital herpes.

STDs are highly preventable. If diagnosed early some STDs, such as gonorrhea and Chlamydia, can be quickly and easily treated and cured before serious complications develop. Other STDs, such as HIV/AIDS and genital herpes, are not curable, but prompt diagnosis and treatment can help to reduce or delay the onset of serious complications, improve the quality of life, and minimize the spread of the disease to others.

If left untreated, STDs can lead to serious complications, such as pelvic inflammatory disease, infertility, prostatitis, epididymitis, ectopic pregnancy, frequent opportunistic infection, and death. Having one STD also put a person at greater risk for contracting HIV/AIDS and other STDs.

Any person that engages in sexual activity can contract and pass on a STD. This includes heterosexual, homosexual, and bisexual men and women. The more sexual partners a person has, the greater the risk of catching a STD.

There are a wide variety of symptoms of STDs, and they run the gamut from none to severe. Symptoms also vary between individuals. Serious permanent damage to the reproductive organs and other complications can occur even in the absence of symptoms.

Symptoms of STDs can include pubic itching, pubic rashes, blisters and lesions on the genitals, dementia, and weight loss. Symptoms specific to women can include pelvic pain, vaginal discharge with a foul odor, pain with sexual intercourse, and fever. Symptoms in men include pain or burning with urination, testicular pain, and a thick discharge from the penis.

Making a diagnosis of a STD includes taking a medical and sexual history and completing a physical and pelvic examination for women and a physical examination of the penis and testicles for men. A diagnosis also includes performing lab tests to determine if an infection is present and the type of infecting organism. Pelvic ultrasound and laparoscopic surgery may also be done in women, depending on the symptoms and history.

The first step in treatment of STDs is prevention. Prevention of STDs is best accomplished by abstaining from sexual activity or having sex only with a mutually monogamous relationship in which neither partner is infected with STD. Latex condoms also provide some protection from some STDs when used properly.

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Specific Types of Sexually Transmitted Diseases

Syphilis

Syphilis is a sexually transmitted disease caused by the bacterium *Treponema pallidum*. It has often been called “the great imitator” because so many of the signs and symptoms are indistinguishable from those of other diseases.

In the United States, health officials reported over 36,000 cases of syphilis in 2006, including 9,756 cases of primary and secondary (P & S) syphilis. In 2006, half of all P & S syphilis cases were reported from twenty countries and two cities; and most P & S syphilis cases occurred in persons 20 to 39 years of age. The incidence of P & S syphilis was highest in women 20 to 24 years of age and in men 35 to 39 years of age. Reported cases of congenital syphilis in newborns increased from 2005 to 2006, with 339 new cases reported in 2005 compared to 349 in 2006.

Syphilis is passed from person to person through direct contact with a syphilis sore. Sores occur mainly on external genitals, vagina, anus, or in the rectum. Sores also can occur on the lips and in the mouth. Transmission of the organism occurs during vaginal, anal, or oral sex. Pregnant women with the disease can pass it to the babies they are carrying. Syphilis cannot be spread through contact with toilet seats, doorknobs, swimming pools, hot tubs, bathtubs, shared clothing, or eating utensils.

Many people infected with syphilis do not have any symptoms for years, yet remain at risk for late complications if they are not treated. Although transmission occurs from persons with sores who are in the primary or secondary stage, many of these sores are unrecognized. Thus, transmission may occur from persons who are unaware of their infection.

Syphilis occurs in three stages: Primary Stage; Secondary Stage; Late or Latent Stages

Primary Stage:

The primary stage of syphilis is usually marked by the appearance of a single sore (called a chancre), but there may be multiple sores. The time between infection with syphilis and the start of the first symptom can range from 10 to 90 days (average 21 days). The chancre is usually firm, round, small, and painless. It appears at the spot where syphilis entered the body. The chancre lasts 3 to 6 weeks, and it heals without treatment. However, if adequate treatment is not administered, the infection progresses to the secondary stage.

Secondary Stage:

Skin rash and mucous membrane lesions characterize the secondary stage. This stage typically starts with the development of a rash on one or more areas of the body. The rash usually does not cause itching. Rashes associated with secondary syphilis can appear as the chancre is healing or several weeks after the chancre has healed. The characteristic rash of secondary syphilis may appear as rough, red, or reddish brown spots both on the palms of the hand and the bottom of the feet. However, rashes with a different appearance may occur on other parts of the body, sometimes resembling rashes caused by other diseases. Sometimes rashes associated with secondary syphilis may include fever, swollen lymph glands, sore throat, patchy hair loss, headaches, weight loss, muscle aches, and fatigue. The signs and

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symptoms of secondary syphilis will resolve with or without treatment, but without treatment, the infection will progress to the latent and possibly late stages of disease.

Late and Latent Stages

The latent or hidden stage of syphilis begins when primary and secondary symptoms disappear. Without treatment, the infected person will continue to have syphilis even though there are no signs or symptoms; infection remains in the body. This latent stage can last for years. The late stages of syphilis can develop in about 15 percent of people who have not been treated for syphilis, and can appear 10-20 years after infection was first acquired. In the late stages of syphilis, the disease may subsequently damage the internal organs, including the brain, nerves, eyes, heart, blood vessels, liver, bones, and joints. Signs and symptoms of the late stage of syphilis include difficulty coordinating muscle movements, paralysis, numbness, gradual blindness, and dementia. This damage may be serious enough to cause death.

The syphilis bacterium can infect the baby of a woman during her pregnancy. Depending on how long a pregnant woman has been infected, she may have a high risk of having a stillbirth or giving birth to a baby who dies shortly after birth. An infected baby may be born without signs or symptoms of disease. However, if not treated immediately, the baby may develop serious problems within a few weeks. Untreated babies may become developmentally delayed, have seizures, or die.

What Is the Link Between Syphilis and HIV?

Genital sores cause by syphilis make it easier to transmit and acquire HIV infection sexually. There is an estimated 2-to-5 fold increased risk of acquiring HIV if exposed to that infection when syphilis is present.

Ulcerative STDs that cause sores, ulcers, or breaks in the skin of mucous membranes, such as syphilis, disrupt barriers that provide protection against infections. The genital ulcers caused by syphilis can bleed easily, and when they come into contact with oral and rectal mucosa during sex, increase the infectiousness and susceptibility to HIV. Having other STDs is also an important predictor for becoming HIV infected because STDs are a marker for behaviors associated with HIV transmission.

Treatment

Syphilis is easy to cure in its early stages. A single intramuscular injection of penicillin, an antibiotic, will cure a person who has had syphilis for less than a year. Additional doses are needed to treat someone who has had syphilis for longer than a year. For people who are allergic to penicillin, other antibiotics are available to treat syphilis. There are no home remedies or over-the-counter drugs that will cure syphilis. Treatment will kill the syphilis bacterium and prevent further damage, but it will not repair the damage already done.

Because effective treatment is available, it is important that persons be screened for syphilis on an on-going basis if their sexual behaviors put them at risk for STDS.

Persons who receive syphilis treatment must abstain from sexual contact with new partners until the syphilis sores are completely healed. Persons with syphilis must notify their sex partners so that they also can be tested and receive treatment if necessary.

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Having syphilis once does not protect a person from getting it again. Following successful treatment, people can still be susceptible to re-infection. Only laboratory tests can confirm whether someone has syphilis. Because syphilis sores can be hidden in the vagina, rectum, or mouth, it may not be obvious that a sex partner has syphilis. Talking with a health care provider will help determine then need to be re-tested for syphilis after being treated.

Prevention

The surest way to avoid transmission of sexually transmitted diseases, including syphilis, is to abstain from sexual contact or to be in a long-term mutually monogamous relationship with a partner who has been tested and is known to be uninfected.

Avoiding alcohol and drug use may also help prevent transmission of syphilis because these activities may lead to risky sexual behavior. It is important that sex partners talk to each other about their HIV status and history of other STDs so that preventive action can be taken.

Genital ulcer diseases, like syphilis, can occur in both male and female genital areas that are covered or protected by a latex condom, as well as in areas that are not covered. Correct and consistent use of latex condoms can reduce the risk of syphilis as well as genital herpes infected areas or site of potential exposure is protected.

Condoms lubricated with spermicides (especially Nonoxyno-9-or N-9) are no more effective than other lubricated condoms in protecting against the transmission of STDs. Transmission of an STD, including syphilis cannot be prevented by washing the genitals, urinating, or douching after sex. Any unusual discharge, sore, or rash, particularly in the groin area, should be a signal to refrain from having sex and to see a doctor immediately.

Gonorrhea

Gonorrhea is a sexually transmitted disease. Gonorrhea is caused by *Neisseria gonorrhoeae*, a bacterium that can grow and multiply easily in warm, moist areas of the reproductive tract, including the cervix, uterus, and fallopian tubes in women, and in the urethra in women and men. The bacterium can also grow in the mouth, throat, eyes, and anus.

Gonorrhea is a very common infectious disease. CDC estimates that more than 700,000 person in the U.S. get new gonorrheal infections each year. Only about half of these infections are reported to CDC. In 2006, 358,366 cases of gonorrhea were reported to the CDC. In the period from 1975 to 1997, the national gonorrhea rate declined, following the implementation of the national gonorrhea control program in the mid-19970s. After several years of stable gonorrhea rates the national gonorrhea rate increased for the second consecutive year. In 2006, the rate of reported gonorrheal infections was 120.9 per 100,000 persons.

Gonorrhea is spread through contact with the penis, vagina, mouth, or anus. Ejaculation does not have to occur for gonorrhea to be transmitted or acquired. Gonorrhea can also be spread from mother to baby during delivery.

People who have had gonorrhea and received treatment may get infected again if they have sexual contact with a person infected with gonorrhea.

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Risk

Any sexually active person can be infected with gonorrhea. In the United States, the highest reported rates of infection are among sexually active teenagers, young adults, and African Americans.

Symptoms

Some men with gonorrhea may have no symptoms at all. However, some men have signs or symptoms that appear two to five days after infection; symptoms can take as long as 30 days to appear. Symptoms and signs include a burning sensation when urinating, or a white, yellow, or green discharge from the penis. Sometimes men with gonorrhea get painful or swollen testicles.

In women, the symptoms of gonorrhea are often mild, but most women who are infected have no symptoms. Even when a woman has symptoms, they can be so non-specific as to be mistaken for a bladder or vaginal infection. The initial symptoms and signs in women include a painful or burning sensation when urinating, increased vaginal discharge, or vaginal bleeding between periods. Women with gonorrhea are at risk of developing serious complications from the infection, regardless of the presence or severity of symptoms.

Symptoms of rectal infection in both men and women may include discharge, anal itching, soreness, bleeding, or painful bowel movements. Rectal infection also may cause no symptoms. Infections in the throat may cause a sore throat, but usually causes no symptoms.

Complications

Untreated gonorrhea can cause serious and permanent health problems in both women and men. In women, gonorrhea is a common cause of pelvic inflammatory disease. About one million women each year in the United States develop pelvic inflammatory disease. The symptoms may be quite mild or can be very severe and can include abdominal pain and fever. PID can lead to internal abscesses (pus-filled “pockets” that are hard to cure) and long-lasting, chronic pelvic pain. PID can damage the fallopian tubes enough to cause infertility or increase the risk of ectopic pregnancy. Ectopic pregnancy is a life-threatening condition in which a fertilized egg grows outside the uterus, usually in a fallopian tube.

In men, gonorrhea can cause epididymitis, a painful condition of the ducts attached to the testicles that may lead to infertility if left untreated.

Gonorrhea can spread to the blood and joints. This condition can be life threatening. In addition, people with gonorrhea can more easily contract HIV, the virus that causes AIDS. HIV-infected people with gonorrhea can transmit HIV more easily to someone else than if they did not have gonorrhea.

If a pregnant woman has gonorrhea, she may give the infection to her baby as the baby passes through the birth canal during delivery. This can cause blindness, joint infection, or a life-threatening blood infection in the baby. Treatment of gonorrhea as soon as it is detected in pregnant women will reduce the risk of these complications. Pregnant women should consult a health care provider for appropriate examination, testing, and treatment, as necessary.

Treatment

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Several antibiotics can successfully cure gonorrhea in adolescents and adults. However, drug-resistant strains of gonorrhea are increasing in many areas of the world, including the United States, and successful treatment of gonorrhea is becoming more difficult. Because many people with gonorrhea also have Chlamydia, another STD, antibiotics for both infections are usually given together. Persons with gonorrhea should be tested for other STDs.

It is important to take all of the medication prescribed to cure gonorrhea. Although medication will stop the infection, it will not repair any permanent damage done by the disease. People who have gonorrhea and have been treated can get the disease again if they have sexual contact with persons infected with gonorrhea. If a person's symptoms continue even after receiving treatment, he or she should return to a doctor to be reevaluated.

Prevention

The surest way to avoid transmission of STDs is to abstain from sexual intercourse, or to be in a long-term mutually monogamous relationship with a partner who has been tested and is known to be uninfected. Latex condoms, when used consistently and correctly, can reduce the risk of transmission of gonorrhea.

Any genital symptoms such as discharge or burning during urination or unusual sore or rash should be a signal to stop having sex and to see a doctor immediately. If a person has been diagnosed and treated for gonorrhea, he or she should notify all recent sex partners so they can see a health provider and be treated. This will reduce the risk that the sex partners will develop serious complications from gonorrhea and will also reduce the person's risk of becoming re-infected. The person and all of his or her sex partners must avoid sex until they have completed their treatment for gonorrhea.

Genital Herpes

Genital herpes is a sexually transmitted disease caused by the herpes simplex viruses type 1 (HSV-1) or type 2 (HSV-2). Most genital herpes is caused by HSV -2. Most individuals have no or only minimal signs or symptoms from HSV-1 or HSV-2 infection. When signs do occur, they typically appear as one or more blisters on or around the genitals or rectum. The blisters break, leaving tender ulcers (sores) that may take two to four weeks to heal the first time they occur. Typically, another outbreak can appear weeks or months after the first, but it almost always is less severe and shorter than the first outbreak. Although the infection can stay in the body indefinitely, the number of outbreaks tends to decrease over a period of years.

Results of a nationally representative study show that genital herpes infection is common in the United States. Nationwide, 16.2%, or about one out of six, people 14 to 49 years of age have genital HSV-2 infection. Over the past decade, the percentage of Americans with genital herpes infection in the U.S. has remained stable.

Genital HSV-2 infection is more common in women (approximately one out of five women 14 to 49 years of age) than in men (about one out of nine men 14 to 49 years of age). Transmission from an infected male to his female partner is more likely than from an infected female to her male partner.

Transmission

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HSV-1 and HSV-2 can be found in and released from the sores that the viruses cause, but they also are released between outbreaks from skin that does not appear to have a sore. Generally, a person can only get HSV-2 infection during sexual contact with someone who has a genital HSV-2 infection.

Transmission can occur from an infected partner who does not have a visible sore and may not know that he or she is infected.

HSV-1 can cause genital herpes but it more commonly causes infections of the mouth and lips, so-called “fever blisters.” HSV-1 infection of the genitals can be caused by oral-genital or genital-genital contact with a person who has HSV-1 infection. Genital HSV-1 outbreaks recur less regularly than genital HSV-2 outbreaks.

Signs and Symptoms

Most people infected with HSV-2 are not aware of their infection. However, if signs and symptoms occur during the first outbreak, they can be quite pronounced. The first outbreak usually occurs within two weeks after the virus is transmitted, and the sores typically heal within two to four weeks. Other signs and symptoms during the primary episode may include a second crop of sores, and flu-like symptoms, including fever and swollen glands. However, most individuals with HSV-2 infection never have sores, or they have very mild signs that they do not even notice or that they mistake for insect bites or another skin condition.

People diagnosed with a first episode of genital herpes can expect to have several (typically four or five) outbreaks (symptomatic recurrences) within a year. Over time these recurrences usually decrease in frequency. It is possible that a person becomes aware of the “first episode” years after the infection is acquired.

Complications

Genital herpes can cause recurrent painful genital sores in many adults, and herpes infection can be severe in people with suppressed immune systems. Regardless of severity of symptoms, genital herpes frequently causes psychological distress in people who know they are infected.

In addition, genital HSV can lead to potentially fatal infections in babies. It is important that women avoid contracting herpes during pregnancy because a newly acquired infection during late pregnancy poses a greater risk of transmission to the baby. If a woman has active genital herpes at delivery, a cesarean delivery is usually performed. Fortunately, infection of a baby from a woman with herpes infection is rare.

Herpes may play a role in the spread of HIV, the virus that causes AIDS. Herpes can make people more susceptible to HIV infection, and it can make HIV-infected individuals more infectious.

Diagnosis

The signs and symptoms associated with HSV-2 can vary greatly. Health care providers can diagnose genital herpes by visual inspection if the outbreak is typical, and by taking a sample for the sore(s) and testing it in a laboratory. HSV infections can be diagnosed between outbreaks by the use of a blood test. Blood tests, which detect antibodies to HSV-1 or HSV-2 infection, can be helpful, although the results are not always clear-cut.

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There is no treatment that can cure herpes, but antiviral medications can shorten and prevent outbreaks during the period of time the person takes the medication. In addition, daily suppressive therapy for symptomatic herpes can reduce transmission to partners.

Prevention

The surest way to avoid transmission of sexually transmitted diseases, including genital herpes, is to abstain from sexual contact, or to be in a long-term mutually monogamous relationship with a partner who has been tested and is known to be uninfected.

Genital ulcer diseases can occur in both male and female genital areas that are covered or protected by a latex condom, as well as in areas that are not covered. Correct and consistent use of latex condoms can reduce the risk of genital herpes.

Persons with herpes should abstain from sexual activity with uninfected partners when lesions or other symptoms of herpes are present. It is important to know that even if a person does not have any symptoms he or she can still infect sex partners. Sex partners of infected persons should be advised that they may become infected and they should use condoms to reduce the risk. Sex partners can seek testing to determine if they are infected with HSV. A positive HSV-2 blood test most likely indicates a genital herpes infection.

Human Papillomavirus (HPV)

Genital HPV infection is a sexually transmitted disease that is caused by human papillomavirus (HPV). Human papillomavirus is the name of a group of viruses that includes more than 100 different strains or types. More than 30 of these viruses are sexually transmitted, and they can infect the genital area of men and women including the skin of the penis, vulva, or anus, and the lining of the vagina, cervix, or rectum. Most people who become infected with HPV will not have any symptoms and will clear the infection on their own.

Some of the viruses are called “high-risk” types and may cause abnormal Pap tests. They may also lead to cancer of the cervix, vulva, vagina, anus, or penis. Others are called “low risk” types, and they may cause mild Pap test abnormalities or genital warts. Genital warts are single or multiple growths or bumps that appear in the genital area, and sometimes are cauliflower shaped.

Approximately 20 million Americans are currently infected with HPV. At least 50 percent of sexually active men and women acquire genital HPV infection at some point in their lives. By age 50, at least 80 percent of women will have acquired genital HPV infection. About 6.2 million Americans get a new genital HPV infection each year.

The types of HPV that infect the genital area are spread primarily through genital contact. Most HPV infections have no signs or symptoms; therefore, most infected persons are unaware they are infected, yet they can transmit the virus to a sex partner. Rarely, a pregnant woman can pass HPV to her baby during vaginal delivery. A baby that is exposed to HPV very rarely develops warts in the throat or voice box.

Most people who have genital HPV infection do not know they are infected. The virus lives in the skin or mucous membranes and usually causes no symptoms. Some people get visible genital warts, or have

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pre-cancerous changes in the cervix, vulva anus, or penis. Very rarely, HPV infection in anal or genital cancers.

Genital warts usually appear as soft, moist, pink, or flesh-colored swellings, usually in the genital area. They can be raised or flat, single or multiple, small or large, and sometimes cauliflower shaped. They can appear on the vulva, in or around the vagina or anus, on the cervix, and on the penis, scrotum, groin, or thigh. After sexual contact with an infected person, warts may appear within weeks or months, or not at all.

Genital warts are diagnosed by visual inspection. Visible genital warts can be removed by patient applied medications such as Podofilox and Imiquimod or by treatments performed by a health care provider known as cryosurgery or by applying a weak acid solution. Some individuals chose to forego treatment to see if the warts will disappear on their own. No treatment regimen for genital warts is better than another, and no one treatment regimen is ideal for all cases.

Diagnosis

Most women are diagnosed with HPV on the basis of abnormal Pap tests. A Pap test is the primary cancer-screening tool for cervical cancer or pre-cancerous changes in the cervix, many of which are related to HPV. Also, a specific test is available to detect HPV DNA in women. The test may be used in women with mild Pap test abnormalities or in women 30 years of age at the time of Pap testing. The results of HPV DNA testing can help health care providers decide if further tests or treatment are necessary.

At the present time, no tests are available for HPV for men.

Treatment

There is no “cure” for HPV infection, although in most women the infection goes away on its own. The treatments provided are directed to the changes in the skin or mucous membrane caused by HPV infection, such as warts and pre-cancerous changes in the cervix.

What Is the Connection Between HPV Infection and Cervical Cancer?

All types of HPV can cause mild Pap test abnormalities which do not have serious consequences. Approximately 10 of the 30 identified genital HPV types can lead, in rare cases, to the development of cervical cancer. Research has shown that for most women (90 percent), cervical HPV infection becomes detectable within two years. Although only a small proportion of women have persistent infection, persistent infection with “high-risk” types of HPV is the main risk factor for cervical cancer.

Preventions (Reducing Risk)

The surest way to eliminate risk for genital HPV infection is to refrain from any genital contact with another individual. For those who choose to be sexually active, a long-term mutually monogamous relationship with an uninfected partner is the strategy most likely to prevent future genital HPV infections. However, it is difficult to determine whether a partner who has been sexually active in the past is currently infected.

For those choosing to be sexually active and who are not in long-term mutually monogamous relationships, reducing the number of sexual partners and choosing a partner less likely to be infected

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may reduce the risk of genital HPV infection. Partners less likely to be infected include those who have had no or few prior sex partners.

HPV infection can occur in both male and female genital areas that are covered or protected with by a latex condom, as well as in areas that are not covered. While the effect of condoms in preventing HPV infection is unknown, condom use has been associated with a lower rate of cervical cancer, and HPV-associated diseases.

Trichomoniasis

Trichomoniasis is a common sexually transmitted disease that affects both women and men, although symptoms are more common in women. Trichomoniasis is the most common curable STD in young, sexually active women. An estimated 7.4 million new cases occur each year in women and men.

Trichomoniasis is caused by the single-celled protozoan parasite, *Trichomonas vaginalis*. The vagina is the most common site of infection in women, and the urethra is the most common site of infection in men. The parasite is sexually transmitted through the penis-to-vagina intercourse or vulva-to-vulva contact with infected partner. Women can acquire the disease from infected men or women, but men usually contract it only from infected women.

Most women have signs or symptoms of infection which include a frothy, yellow-green vaginal discharge with a strong odor. The infection also may cause discomfort during intercourse and urination, as well as irritation and itching of the female genital area. In rare cases, lower abdominal pain can occur. Symptoms usually appear in women within 5 to 28 days of exposure.

The complications caused by trichomoniasis can increase a woman's susceptibility to HIV infection if she is exposed to the virus. Having trichomoniasis may increase the chances of an HIV-infected woman passing HIV to her sex partner. Also, pregnant women with trichomoniasis may have babies who are born early or with low birth weight (low birth rate is less than 5.5 pounds).

For both men and women, a health care provider must perform a physical examination and laboratory test to diagnose trichomoniasis. The parasite is harder to detect in men than in women. In women, a pelvic examination can reveal small red ulcerations on the vaginal wall or cervix.

Trichomoniasis can usually be cured with prescription drugs, either metronidazole or tinidazole, given by mouth in a single dose. The symptoms of trichomoniasis in infected men may disappear within a few weeks without treatment. However, an infected man, even a man who has never had symptoms or whose symptoms have stopped, can continue to infect or re-infect a female partner until he has been treated. Therefore, both partners should be treated at the same time to eliminate the parasite. Persons being treated for trichomoniasis should avoid sex until they and their sex partners complete treatment and have no symptoms. Metronidazole can be used by pregnant women.

Having trichomoniasis once does not protect a person from getting it again. Following successful treatment, people can still be susceptible to re-infection.

The surest way to avoid transmission of sexually transmitted diseases is to abstain from sexual contact, or to be in long-term mutually monogamous relationship with a partner who has been tested and is

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known to be uninfected. Latex condoms, when used consistently and correctly, can reduce the risk of transmission of trichomoniasis.

Any genital symptom such as discharge or burning during urination or an unusual sore or rash should be signal to stop having sex and to consult a health care provider immediately. A person diagnosed with trichomoniasis should receive treatment and should notify all recent sex partners so that can see a health care provider and be treated. This reduces the risk that the sex partners will develop complications from trichomoniasis and reduces the risk that the person with trichomoniasis will become re-infected. Sex should be stopped until the person with trichomoniasis and all of his or her recent partners complete treatment for trichomoniasis and have no symptoms.

Chlamydia

Chlamydia is a common sexually transmitted disease caused by the bacterium, *Chlamydia trachomatis*, which can damage a woman's reproductive organs. Even though symptoms of Chlamydia are usually mild or absent, serious complications that cause irreversible damage, including infertility, can occur "silently" before a woman ever recognizes a problem. Chlamydia also can cause discharge from the penis of an infected man.

Chlamydia is most frequently reported bacterial sexually transmitted disease in the United States. In 2008, 1,210,523 Chlamydia infections were reported to CDC from 50 states and the District of Columbia. Under-reporting is substantial because most people with Chlamydia are not aware of their infections and do not seek testing. Also testing is not often done if patients are treated for their symptoms. An estimated 2,291,000 non-institutionalized U.S. civilians ages 13-39 are infected with *C. trachomatis* based on the U.S. National Health and Nutrition Examination Survey. Women are frequently re-infected if their sex partners are not treated.

Chlamydia can be transmitted during vaginal, anal, or oral sex. Chlamydia can also be passed from an infected mother to her baby during vaginal childbirth.

Any sexually active person can be infected with Chlamydia. The greater the number of sex partners, the greater the risk of infection. Because the cervix of teenage girls and young women is not fully matured and is probably more susceptible to infection, they are at particularly high risk for infection if sexually active. Since Chlamydia can be transmitted by oral and anal sex, men who have sex with men are also at risk for chlamydial infection.

Chlamydia is known as a "silent" disease because the majority of infected people have no symptoms. If symptoms do occur, they usually appear within 1 to 3 weeks after exposure.

In women, the bacteria initially infect the cervix and the urethra. Women who have symptoms might have an abnormal vaginal discharge or a burning sensation when urinating. If the infection spreads from the cervix to the fallopian tubes, some women still have no signs or symptoms; others have lower abdominal pain, low back pain, nausea, fever, pain during intercourse, or bleeding between menstrual periods. Chlamydial infection of the cervix can spread to the rectum.

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Men with signs or symptoms might have a discharge from their penis or a burning sensation when urinating. Men might also have burning and itching around the opening of the penis. Pain and swelling in the testicles are uncommon.

Men and women who have receptive anal intercourse may acquire Chlamydia infection in the rectum, which can cause rectal pain, discharge, or bleeding. Chlamydia can also be found in the throats of women and men having oral sex with an infected partner.

If untreated, chlamydial infections can progress to serious reproductive and other health problems with both short-term and long-term consequences. Like the disease itself, the damage that chlamydia causes is often “silent.”

In women, untreated infection can spread into the uterus or fallopian tubes and cause pelvic inflammatory disease (PID). This happens in about 10 to 15 percent of women with untreated Chlamydia. Chlamydia can also cause fallopian tube infection with any symptoms. PID and “silent” infection in the upper genital tract can cause permanent damage to the fallopian tubes, uterus, and surrounding tissues. The damage can lead to chronic pelvic pain, infertility, and potentially fatal ectopic pregnancy (pregnancy outside of the uterus). Chlamydia may also increase the chances of becoming infected with HIV if exposed.

To help the serious consequences of Chlamydia, screening at least annually for Chlamydia is recommended for all sexually active women age 25 years and younger. An annual screening test also is recommended for older women with risk factors for Chlamydia. All pregnant women should have a screening test for Chlamydia.

Complications among men are rare. Infection sometimes spreads to the epididymis (the tube that carries sperm from the testis), causing pain, fever, and, rarely, sterility.

Rarely, genital chlamydial infection can cause arthritis that can be accompanied by skin lesions and inflammation of the eye and urethra.

In pregnant women, there is some evidence that untreated chlamydial infections can lead to premature delivery. Babies who are born to infected mothers can get chlamydial infections in their eyes and respiratory tracts. Chlamydia is a leading cause of early infant pneumonia and conjunctivitis (pink eye) in newborns.

Chlamydia can be easily treated and cured with antibiotics. Azithromycin and doxycycline are the most commonly used treatments. HIV-positive persons with Chlamydia should receive the same treatment as those who are HIV negative.

All sex partners should be evaluated, tested, and treated. Persons with Chlamydia should abstain from sexual intercourse until they and their sex partners have completed treatment, otherwise re-infection is possible.

Women whose sex partners have not been appropriately treated are at high risk for re-infection. Having multiple infections increases a woman’s risk of serious reproductive health complications, including

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infertility. Retesting should be encouraged three months after treatment of an initial infection. This is especially true if a woman does not know if her sex partner received treatment.

The surest way to avoid transmission of STDs is abstain from sexual contact, or to be in a long-term mutually monogamous relationship with a partner who has been tested and is known to be uninfected. Latex male condoms, when used consistently and correctly, can reduce the risk of transmission of Chlamydia.

Pubic Lice

Pubic Lice (also called crab lice or “crabs”) are parasitic insects found primarily in the pubic or genital areas of humans. Pubic lice infestation is found worldwide and occurs in all races, ethnic groups, and levels of society.

Pubic lice have forms: the egg (also called the nit), the nymph, and the adult. Nits are lice eggs. They can be hard to see and are found attached firmly to the hair shaft. They are oval and usually yellow to white. Pubic lice nits take about 6-10 days to hatch. The nymph is an immature louse that hatches from the nit. A nymph looks like an adult pubic louse but it is smaller. Pubic lice nymphs take about 2-3 weeks after hatching to mature into adults capable of reproducing. To live a nymph must feed on blood. The adult pubic louse resembles a miniature crab when viewed through a strong magnifying glass. Pubic lice have six legs: their two front legs are very large and look like the pincher claws of a crab. Pubic lice are tan to grayish-white in color. Females lay nits and are usually larger than males.

Treatment for Pubic Lice may consist of a lotion containing 1% permethrin or a mousse containing pyrethrins and piperonyl butoxide can be used to treat public lice. These products are available over-the-counter without a prescription at a local drug store or pharmacy. These medications are safe and effective when used exactly according to the instructions in the package on the label.

There are prescription medications such as lindane shampoo; although it is not recommended as first line therapy. Malathion and ivermectin have been used successfully to treat public lice; however, these drugs have not been approved by the U.S. FDA for treatment of public lice.

Treatment of HIV/AIDS

There are a number of medications and a combination of medications that are effective in suppressing the development of HIV and AIDS. One of the commonly used drugs is the Highly Active Antiretroviral Therapy. HAART combines three or more drugs from at least two different classes to suppress the replication process of the virus in at least two different ways. Using this method the replication process is slowed down and the rate at which drug resistance can develop is vastly reduced because HIV finds it more difficult to overcome this combined attack.

HAART uses several different kinds of medications, usually three or four, to combat HIV. There are different phases of HAART, and the stage of the retrovirus will determine the phase of medication to be used. The types of medication includes: Nucleoside and nucleotide reverse transcriptase inhibitors which incorporates themselves into the viral DNA and prevents the virus from further elongation. NON-nucleoside and nucleotide reverse binds to the enzyme and interferes with the virus's ability to function. Protease inhibitors inhibit the activity of protease, which is an enzyme used by HIV to cleave proteins and create new virions. Integrase inhibitors inhibit integrase, which causes the integration of viral DNA

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into an infected cell's DNA. Entry inhibitors interfere with the entry of HIV in the cells by blocking the virus. Maturation inhibitor blocks the conversion of the polyprotein into the capsid protein.

HAART works against HIV by using these drugs in combination to suppress HIV replication as many times as possible. The combination of these HAART drugs creates problems for HIV replication, keeps the HIV offspring low, and reduces the possibility of HIV mutating. The HAART drugs must be used in combination to suppress HIV for long periods of time, but eventually the body will reject the drugs, and a new combination of HAART drugs will be recommended.

While HAART does work to control HIV, HAART is not a cure for this virus. It is imperative that a person taking these medications stick to the regimen, and this includes multiple pills a day.

Again, HAART is not a cure for the HIV virus and as of yet no cure has been found for HIV/AIDS.

Co-Infection of HIV/AIDS and Other STDs

About one quarter of HIV-infected persons in the United States are also infected with hepatitis C virus (HCV). HCV is one of the most important causes of chronic liver disease in the United States, and HCV infection progresses more rapidly to liver damage in HIV-infected persons. HCV may also impact the course and management of HIV infection.

The latest U.S. Public Health Services/Infectious Diseases Society of America guidelines recommend that all HIV-infected persons be screened for HCV infection. Preventing HCV infection for those not already infected and reducing chronic liver disease in those who are infected and reducing chronic liver disease in those who are infected are important concerns for HIV-infected persons and their health care providers.

Who Is Likely To Have HIV-HCV Co-infection?

The hepatitis C virus (HCV) is transmitted primarily by large or repeated direct percutaneous (i.e., passage through the skin by puncture) exposures to contaminated blood. Therefore, co-infection with HIV and HCV is common (50%-90%) among HIV-infected injection drug users (IDUs). Co-infection is also common among persons with hemophilia who received clotting factor concentrates before concentrates were effectively treated to inactivate both viruses (i.e., products made before 1987)). The risk for acquiring infection through perinatal or sexual exposures is much lower for HCV than for HIV. For persons infected with HIV through sexual exposure co-infection with HCV is no more common than among similarly aged adults in the general population (3%-5%).

Effects of Co-Infection of HCV and HIV

Chronic HIV infection develops in 75%-85% of infected persons and leads to chronic liver disease in 70% of these chronically infected persons. HIV-HCV co-infection has been associated with higher levels of HCV, more rapid progression of HCV-related liver disease, and an increased risk for HCV-related cirrhosis (scarring) of the liver. Because of this, HCV infection has been viewed as an opportunistic infection in HIV-infected persons and was included in the 1999 USPHS/DSA Guidelines for the Prevention of Opportunistic Infections in Persons Infected with Human Immunodeficiency Virus. It is not, however, considered an AIDS-defining illness. As highly active antiretroviral therapy (HAART) and prophylaxis of opportunistic infections increase the life span of persons living with HIV, HCV-related liver disease has become a major cause of hospital admissions and deaths among HIV-infected persons.

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The effects of HCV co-infection of HIV disease progression are less certain. Some studies have suggested that infection with certain HCV genotypes is associated with more rapid progression of AIDS or death. However, the subject remains controversial. Since co-infected patients are no longer on HAART, more data are needed to determine if HCV infection influences the long-term natural history of HIV infection.

How Can Co-Infection With HCV Be Prevented?

Persons living with HIV who are not already co-infected with HCV can adopt measures to prevent acquiring HCV. Such measures will also reduce the chance of transmitting their HIV infection to others.

Not injecting or stopping injection drug use would eliminate the chief route of HCV transmission; substance-abuse treatment and relapse-prevention programs should be recommended. If patients continue to inject, they should be counseled about safer infection practices; that is, to use new, sterile syringes every time they inject drugs and never reuse or share syringes, needles, water, or drug preparation equipment.

Toothbrushes, razors, and other personal care items that might be contaminated with blood should not be shared. Although there is not data from the United States indicating that tattooing and body piercing places persons at increased risk for HCV infection, these procedures may be a source for infection with any blood borne pathogen if proper infection control practices are not followed.

Although consistent data are lacking regarding the extent to which sexual activity contributes to HCV transmission, persons having multiple sex partners are at risk for other sexually transmitted diseases (STDs) as well as for transmitting HIV to others. They should be counseled accordingly.

How Should Patients Co-infected With HIV and HCV Be Managed?

Patients co-infected with HIV and HCV should be encouraged to adopt safe behaviors to prevent transmission of HIV and HCV to others. Individuals with evidence of HCV infection should be given information about prevention of liver damage, undergo evaluation for chronic liver disease, and, if indicated, be considered for treatment. Persons co-infected with HIV and HCV should be advised not to drink excessive amounts of alcohol. Avoiding alcohol altogether might be wise because the effects of even moderate or low amounts of alcohol on disease progression are unknown. When appropriate, referral should be made to alcohol treatment and relapse-prevention programs. Because of possible effects on the liver, HCV-infected patients should consult with their health care professional before taking any new medicines, including over-the-counter, alternative, or herbal medicines.

Susceptible co-infected patients should receive hepatic A vaccine because the risk for fulminant hepatitis associated with hepatitis A is increased in persons with chronic liver disease. Susceptible patients should receive hepatitis B vaccine because most HIV-infected persons are at risk of HBV infection. The vaccines appear safe for these patients, and more than two-thirds of those vaccinated develop antibody responses. Pre-vaccination screening for antibodies against hepatitis A and hepatitis B in this high-prevalence population is generally cost-effective. Post-vaccination testing for hepatitis A is not recommended, but testing for antibody to hepatitis B surface antigen (anti-HBs) should be performed 1-2 months after completion of the primary series of hepatitis B vaccine. Persons who fail to respond should be revaccinated with up to three additional doses.

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HARRT has no significant effect on HCV. However, co-infected persons may be at increased risk for HAART-associated liver toxicity and should be closely monitored during antiretroviral therapy. Data suggest that the majority of these persons do not appear to develop significant and/or symptomatic hepatitis after initiation of antiretroviral therapy.

Treatment of HCV Infection

In the United States, two different regimens have been approved as therapy for chronic hepatitis C: monotherapy with alpha interferon and combination therapy with alpha interferon and ribavirin. Among HIV-negative persons with chronic hepatitis C, combination therapy consistently yields higher rates (30%-40%) of sustained response than monotherapy (10% -20%). Combination therapy is more effective against viral genotypes 2 and 3, and requires a shorter course of treatment; however, viral genotype 1 is the most common among U.S. patients. Combination therapy is associated with more side effects than monotherapy, but, in most situations, it is preferable. At present, interferon monotherapy is reserved for patients who have contraindications to the use of ribavirin.

Studies have indicated that response rates in HIV-infected patients to alpha interferon monotherapy for HCV were lower than in non-HIV-infected patients, but the differences were not statistically significant. Monotherapy appears to be reasonably well tolerated in co-infected patients. There are no published articles on the long-term effect of combination therapy in co-infected patients, but studies currently under way suggest it is superior to monotherapy. However, the side effects of combination therapy are greater in co-infected patients. Thus, combination therapy should be used with caution until more data are available.

The decision to treat people co-infected with HIV and HCV must also take into consideration their concurrent medications and medical conditions. If CD4 counts are normal or minimally abnormal, there is little difference in treatment success rates between those who are co-infected and those who are infected with HCV alone.

Other Treatment Considerations

Persons with chronic hepatitis C who continue to abuse alcohol are at risk for ongoing liver injury, and antiviral therapy may be ineffective. Therefore, strict abstinence from alcohol is recommended during antiviral therapy, and interferon should be given with caution to a patient who has only recently stopped alcohol abuse. Typically, 6- months of abstinence is recommended for alcohol abusers before starting therapy; such patients should be treated with the support and collaboration of alcohol abuse treatment programs.

Although there is limited experience with antiviral treatment for chronic hepatitis C of persons who are recovering from long-term injection drug use, there are concerns that interferon therapy could be associated with relapse into drug use, both because of its side effects and because it is administered by injection. There is even less experience with treatment of persons who are active injection users, and an additional concern for this group is the risk for re-infection with HCV. Although a 6-month abstinence before starting therapy also has been recommended for injection drug users, additional research is needed on the benefits and drawbacks of treating these patients. Regardless, when patients with past or continuing problems of substance abuse are being considered for treatment, such patients should be

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treated only in collaboration with substance abuse specialists or counselors. Patients can be successfully treated while on methadone maintenance treatment for addiction.

Because many co-infected patients have conditions or factors (such as major depression or active illicit drug or alcohol use) that may prevent or complicate antiviral therapy, treatment for chronic hepatitis C in HIV-infected patients should be coordinated by health care providers with experience in treating co-infected patients or in clinical trials. It is not known if maintenance therapy is needed after successful therapy, but patients should be counseled to avoid injection drug use and other behaviors that could lead to re-infection with HCV and should continue to abstain from alcohol.

Infections in Infants and Children

The average rate of HCV infection among infants born to women co-infected with HCV and HIV is 14% to 17%, higher than among infants born to women infected with HCV alone. Data are limited on the natural history of HCV infection in children, and antiviral drugs for chronic hepatitis C are not approved by the Food and Drug Administration for use in children under aged 18 years. Therefore, children should be referred to a pediatric hepatologist or similar specialist for management and for determination for eligibility in clinical trials.

HIV/AIDS and Tuberculosis

Tuberculosis is a serious disease that spreads through the air. It is caused by a bacterium called *Mycobacterium tuberculosis*. Tuberculosis usually affects the lungs. However, it can affect other parts of the body, such as the central nervous system. About 10-15 million Americans are infected with tuberculosis. For most people with healthy immune systems, this is not a problem. Nine out of 10 of them won't develop active disease with symptoms.

The risk is great for people who are HIV-positive. That's because tuberculosis takes advantage of weakened immune system, which is why it's called an opportunistic infection. Worldwide, tuberculosis is the leading cause of death for people infected with HIV. All people who are HIV positive should be tested for tuberculosis. Prevention and treatment not only help control tuberculosis, but also help prevent greater damage to your immune system.

How People Get Tuberculosis With HIV

The bacteria that cause tuberculosis travel through the air, such as in a cough or sneeze. One is not likely to get the disease through a single exposure. And you can't get it from sharing dishes or utensils, or through touching someone who has it.

A person is more likely to get tuberculosis from consistent exposure to an infected person, such as someone with whom you work with or live. You are more likely to get tuberculosis in places with poor ventilation or crowded conditions. Examples of places one might become infected with tuberculosis are hospitals, nursing homes, jails or prisons, or homeless shelters.

There are two types of tuberculosis infection, latent and active. In the latent stage, the germs remain in the body but do not cause symptoms. If the immune system is weak, the germs can multiply and become active, causing symptoms and disease.

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Active disease is more likely if the person is infected with HIV, especially if the CD4 count is under 200. However, active tuberculosis can happen no matter what your CD4 level is. If a person is infected with both HIV and TB, a person is at least 10 times more likely to develop active TB than someone without HIV. If a person has both infections.

Other factors can also increase the risk for active TB such as pregnancy, poor nutrition, alcohol or injection drug use, being young (less than 5 years old), or being old (older than 65), or being a person of color.

The sign and symptoms of TB are: a cough that last longer form more than two or three weeks, coughing up phlegm or blood, chest pain, weakness or fatigue, weight loss, lack of appetite, fever or chills, and night sweats.

Treatment for TB includes taking several drugs for six to 12 months. It is important that people who have TB disease finish the medicine, and take the drugs exactly as prescribed. If they stop taking the drugs too soon, they can become sick again. If they do not take the medication correctly, the germs that are still alive may become resistant to those drugs. TB that is resistant to drugs is harder and more expensive to treat.

Risk Factors for HIV/AIDS

The term risk is defined as “the probability of being exposed to an infectious agent”. HIV is the virus that damages the immune system, hindering your body’s ability to fight viruses and bacteria responsible for various diseases. Obviously each time one exposes himself or herself to the possibility of contracting HIV/AIDS the possibility of contracting the disease increases.

Risk factors included are:

Having Unprotected Sex – Most people become infected with HIV through sexual activity. You can contract AIDS by not using a condom when having sexual relations with a person infected with HIV. Not using condoms properly can also put you at increased risk for acquiring HIV infection. During sex, the vagina, vulva, penis, rectum, and mouth can provide entry points for the virus.

Other risk behaviors including having sex with someone without knowing his or her HIV status, having sex with more than one partner, having sex with some who has had sex with more than one partner, and anal intercourse.

Injecting Drugs – If you inject illegal drugs, this increases your risk of becoming infected with HIV. Using a needle or syringe that contains even a small amount of infected blood can transmit HIV infection.

Having Certain Medical Conditions – Sexually transmitted diseases (STDs) and vaginal infections caused by bacteria tend to increase the risk of HIV transmission during sex with an HIV-infected partner.

Having a Blood Transfusion – Having or receiving blood products before 1985 increases your risk of HIV infection and AIDS. Before blood banks begin testing donated blood for HIV in 1985, there

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was no way of knowing if the blood was contaminated with HIV, and recipients could become infected through transfusions.

Being a HealthCare Worker – Exposure to contaminated blood and needles puts healthcare workers at risk for HIV infection.

Use of Alcohol or Drugs – Effects mental decision making capabilities.

Prevention Against Contracting HIV/AIDS/STDS

- Know your HIV/AIDS status.
- Get Tested.
- Use latex condoms: Proper, consistent use of latex condom can prevent transmission of HIV/AIDS 89 to 95% of the time. Condoms can also help reduce the risk of acquiring some other STDs. Educate self on proper condom use.
- Use plastic wrap or dental dams to help prevent HIV-infection during oral and oral-anal sex.
- Use clean needles: if you do injectible drugs, use a new, clean needle every time.
- Have sober sex. Drug and alcohol-free sex increases your chances of having safer sex.
- Educate yourself and learn more. The more you know about safe sex, your body, condom use, HIV/AIDS and your partner, the better you can protect yourself against sexually transmitted diseases.
- Fewer partners, monogamy, and abstinence. The fewer sex partners you have, the more you reduce your risk of HIV infection. While sex is a healthy, natural part of life, you may want to wait to have sex until you know the person you are with is someone you truly care about and has your best interest in mind. If they're not willing to wait, then maybe they weren't worth the wait. Trust yourself and what you need.

Risk and Prevention for Healthcare Workers

The risk of health care workers being exposed to HIV on the job is very low, especially if they carefully follow “universal precautions,” which are meant to protect them from exposure to body fluids. The main risk of HIV transmission for health care workers on the job is through accidental injuries from needles and other sharp instruments that might be contaminated with the virus. However, even this risk is small. Scientists estimate that the risk of infection from a needle stick is less than one percent, a figure based on the findings of several studies of health care workers who received punctures from HIV-contaminated needles or were otherwise exposed to HIV-contaminated blood.

If a healthcare worker is exposed to HIV-contaminated bodily fluid on the job, they can take medication to help reduce their risk of infection. These treatments, called post-exposure prophylaxis, or PEP, usually involve taking a four-week regimen of two or three antiretroviral drugs. The health worker should undergo a baseline test for HIV infection and begin PEP as quickly as possible after the exposure, usually within 36 hours.

As stated earlier, the best prevention for healthcare workers against HIV/AIDS infection is the practice of Universal Precaution. Universal precautions are work practices required for the basic level of infection prevention and exposure control. Universal precautions apply to the handling of blood and other body fluids/substances, regardless of whether they contain visible blood.

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Universal precautions consist of the following:

- a) Non-porous water proof dressings for workers with chapped or broken skin
- b) Water-impermeable gloves
- c) Masks with filters for mouth-to-mouth resuscitation
- d) Eye protection
- e) Plastic aprons
- f) Waterproof gowns
- g) Fluid resistant surgical masks
- h) Overalls
- i) Boots

Workplace information and education programs are essential to combat the spread of HIV/AIDS. Effective education can contribute to the capacity of workers to protect themselves against HIV infection. Also, it can significantly reduce the HIV-related anxiety and stigmatization, minimize disruption in the workplace, and bring about attitudinal and behavioral changes.

Psychological Risk Factors for HIV/AIDS

How people think and feel influences how they behave. Psychological factors such as risk perception, personality characteristics, and psychological states influence the extent to which people engage in high- or low-risk behaviors.

People who think AIDS is a relatively minor or remote problem are less likely to take steps to reduce their risks. In addition, people who think that they personally are not at risk for HIV infection are more likely to engage in risky behaviors.

Other psychological risk factors, including personality characteristics such as low self-esteem, narcissism, antisocial personality, impulsivity, tendency to take risks, and tendency to seek out new sensations, are related to sexual risk-taking behavior (Kalichman, 1998). Coping responses also influence risk behavior. To escape from or relieve stress, some people engage in high-risk sexual behaviors or use drugs and alcohol, just as others may smoke cigarettes or overeat (Kalichman, 1998; Zierler & Krieger, 2000).

Psychological disorders such as personality disorders, self-destructive behaviors, hypersexuality, sexual obsession and compulsivity, depression, anxiety, and negative states of mind are associated with high-risk sexual behaviors with multiple partners. They are also associated with drug abuse and addiction which can increase HIV risk through needle sharing and through decreasing the likelihood that safer-sex practices will be used.

Drug Abuse and Risk of HIV/AIDS

Early in the epidemic, it became apparent that the HIV virus was being spread, not only through sexual contact with infected people, but also through the sharing of injection equipment and drug solutions by injection drug users (IDUs). With such a significant number of HIV cases acquired through injection drug use, effective prevention interventions were needed. Research showed that comprehensive HIV prevention, including drug addiction treatment and community-based outreach, in combination with testing and counseling for HIV and other infections is an effective approach. Such an approach

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continues to be important in reducing HIV infection risk and preventing the spread of HIV and other blood-borne infections in drug-abusing populations.

In addition to injection drug use, drug abuse plays other, less recognized roles in HIV transmission. First, drug intoxication affects user's mental status and judgment, which, in turn, can increase the likelihood that they will engage in high-risk sexual behavior. Further addiction to drugs, as documented from crack cocaine, can further increase user's exposure to unprotected sex as a means to obtain drugs. Finally, psychological consequences of drug abuse may alter susceptibility to infection and interact with HIV.

Male Circumcision and Risk of HIV Transmission and Other Diseases

Male circumcision is the surgical removal of some or all of the foreskin (prepuce) from the penis. Three recent African trials support male circumcision for reducing the risk of contracting HIV in heterosexual men. This study reverses a previous study which showed that there was insufficient evidence to recommend circumcision as intervention to prevent HIV infection in heterosexual men.

Circumcision may help to protect against HIV by removing cells in the foreskin to which the virus is specifically attracted. Called Langerhans cells, they display receptors that enable HIV entry. Previous non-randomized studies investigated the association between circumcision and HIV, but until now, researchers have been unable to make strong recommendations for the intervention due to a lack of high quality evidence gained from randomized clinical trials.

The clinical trials included in the study took place in South Africa, Uganda, and Kenya between 2002 and 2006, and included a total of 11,054 men. The results show that circumcision in heterosexual men significantly reduces their risk of acquiring HIV by 54 percent of a two year period, compared with uncircumcised men. This reduced risk is the best estimate of the average effect and the researchers report that the true risk will be reduced by 38 to 66 percent. Further research is required to establish whether male circumcision offers any benefit to women partners of circumcised men and homosexual men.

In three other U.S. based studies had previously suggested that circumcision may be associated with reduced HIV risk, but the findings were limited by small sample size of extremely low HIV prevalence and did not achieve statistical significance. HIV prevalence in the United States is very low (about 0.4 percent), and the proportion of circumcised adult males is high (about 80 percent), which could make it hard for conventional observational studies.

In a separate editorial on the topic of circumcision, Ronald H. Gray, MMBS of John Hopkins University, pointed out circumcision may be especially important for minority U.S. populations, including Hispanic as well as African American men – subgroups most at risk for HIV infection. Also noted was that the American Academy of Pediatrics has thus far not recommended routine neonatal circumcision.

Hepatitis

Hepatitis is an irritation of the liver that sometimes causes permanent damage. Hepatitis may be caused by medicines, alcohol, or other illicit drugs. There are three types of Hepatitis that will be discussed; Hepatitis A, Hepatitis B, and Hepatitis C.

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Hepatitis A

Hepatitis A is a highly contagious liver infection caused by the hepatitis A virus. Hepatitis A is one of several types of hepatitis viruses that cause inflammation that affects the liver's ability to function. A person is most likely to contract hepatitis A from contaminated food or water or from close contact with someone who's already infected. Mild cases of hepatitis A don't require treatment and most people who are infected recover completely with no permanent liver damage.

Practicing good hygiene including the washing of hands often – is one of the best ways to protect against hepatitis A. Effective vaccines are available to people who are most at risk.

Hepatitis A signs and symptoms typically don't appear until you've had the virus for a month. Signs and symptoms of hepatitis A include

- Fatigue
- Nausea and vomiting
- Abdominal pain or discomfort, especially in the area of the liver on your right side beneath the ribs.
- Loss of appetite
- Low-grade fever
- Dark urine
- Muscle pain
- Itching
- Yellowing of the skin and eyes (jaundice)

Signs and symptoms of hepatitis A usually last less than two months, but may last as long as six months. Not everyone with hepatitis A develops signs or symptoms.

Causes

The hepatitis virus is usually spread when a person ingests tiny amounts of contaminated fecal matter. The hepatitis A virus infects the liver cells and causes inflammation. The inflammation can impair liver function and cause other signs and symptoms of hepatitis A.

Hepatitis A virus can be transmitted several ways: such as:

- When someone with the virus handles the food you eat without first carefully washing his or her hands after using the toilet.
- Drinking contaminated water.
- Eating raw shellfish from water polluted with sewage.
- Being in close contact with a person who's infected – even if that person has no signs and symptoms.
- Having sex with someone who has the virus.
- Receiving a blood transfusion with blood that contains the virus, though this is very rare.

Risk Factors

There may be increased risk factors of hepatitis A if you:

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- Travel or work in regions with high risks of hepatitis A
- Are a man who has sexual contact with other men
- Use injected on non-injected illicit drugs
- Live with another person who has hepatitis A
- Work in a research setting where you may be exposed to the virus
- Receive clotting-factor concentrates of hemophilia or another medical condition.

Complications

A small number of people with hepatitis A will continue to experience signs and symptoms of infection for several weeks longer than usual. For these people, hepatitis A signs and symptoms may go away and then reappear over several weeks. Though the signs and symptoms occur over a longer period of time, this form of hepatitis A infection is not more serious than a hepatitis A infection that causes usual signs and symptoms.

Acute Liver Failure

In rare cases hepatitis A can cause liver failure, which is a loss of liver function that occurs suddenly. People with the highest risk of this complication include those with chronic liver diseases and older adults. Acute liver failure requires hospitalization for monitoring and treatment. In some cases, people with acute liver failure may require a liver transplant.

Hepatitis B

Hepatitis B is a serious liver infection caused by the hepatitis B virus (HBV). For some people, hepatitis B infection becomes chronic, leading to liver failure, liver cancer, or cirrhosis a condition that causes permanent scarring of the liver.

Most people infected with hepatitis B as adults recover fully, even if their signs and symptoms are severe. Infants and children are much more likely to develop a chronic hepatitis B infection. Although no cure exists for hepatitis B, a vaccine can prevent the disease. If a person is already infected, taking certain precautions can help prevent spreading HBV to others.

Symptoms

Signs and symptoms of hepatitis B usually appear about two or three months after a person has been infected and can range from mild to server. Most infants and children with hepatitis B never develop signs and symptoms. The same is true for some adults. Signs and symptoms of hepatitis B include:

- Abdominal pain
- Dark urine
- Joint pain
- Loss of appetite
- nausea and vomiting
- Weakness and fatigue
- Yellowing of the skin and the whites of your eyes (jaundice)

Medical Attention

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If a person has been exposed to hepatitis B, contact our doctor immediately. A preventive treatment may reduce the risk that the virus will infect your body. But the treatment must be administered within 24 hours of exposure to the hepatitis B virus.

Causes

Common ways HBV is transmitted include:

- Sexual contact
- Sharing needles
- Accidental needle sticks
- From mother to child

Acute vs. Chronic Hepatitis B

Hepatitis B infection may be either short-lived (acute hepatitis B) or long lasting (chronic hepatitis B).

Acute Hepatitis B infection last longer than six months. If the disease is acute, the immune system is usually able to clear the virus from the body, and recovery is completed in a few months. Most people who acquire hepatitis B as adults have an acute infection.

Chronic Hepatitis B infection last six months or longer. When the immune system cannot fight off the virus, hepatitis B infection may become lifelong, possibly leading to serious illnesses such as cirrhosis and liver cancer. Most infants infected with HBV at birth and many children infected between 1 and 5 years of age become chronically infected. Chronic infection may go undetected for decades until a person becomes seriously ill from liver disease.

Risk Factors

The risk of hepatitis B infection is increased if a person:

- Has protected sex with more than one partner
- Has unprotected sex with someone who's infected with HBV
- Has a sexually transmitted disease such as gonorrhea or chlamydia
- Is a man who has sexual contact with other men
- Shares needles during intravenous (IV) drug use
- Shares a household with someone who has chronic HBV infection
- Has a job that exposes you to human blood
- Receives hemodialysis for end-state kidney (renal) disease
- Travels to regions with high infections rates of HBV.

Having a chronic HBV infection can lead to serious complications, such as:

- Scarring of the liver (cirrhosis)
- Liver cancer
- Liver failure
- Hepatitis D infection
- Kidney problems
- Blood vessel inflammation (vasculitis)

Hepatitis C

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Hepatitis C infection usually produces no signs or symptoms during its earliest stages. When signs and symptoms do occur, they're generally mild flu-like and may include:

- Fatigue
- Fever
- Nausea and joint pains
- Tenderness in the area of the liver

Causes

Hepatitis C infection is caused by the hepatitis C virus (HCV). HCV is spread when you come into contact with contaminated blood.

HVC can be spread by:

- Blood transfusions and organ-transplants before 1992
- Shared needles
- Childbirth
- Sexual contact

Risk Factors

- Are a health care worker who has been exposed to infected blood
- Have ever injected illicit drugs
- Are HIV-positive
- Received a blood transfusion or organ transplant before 1992
- Received clotting factor concentrates before 1987
- Received hemodialysis treatments for a long period of time
- Where born to a woman with a hepatitis C infection.

Complications

Hepatitis C infection that continues over many years can cause significant complications, such as:

- Scarring of the liver tissue (cirrhosis)
- Liver cancer
- Liver failure