CDC Fact Sheet

Chlamydia

What is chlamydia?

Chlamydia is a common sexually transmitted disease (STD) 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.

How common is chlamydia?

Chlamydia is the most frequently reported bacterial sexually transmitted disease in the United States. In 2006, 1,030,911 chlamydial 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 often not done if patients are treated for their symptoms. An estimated 2,291,000 non-institutionalized U.S. civilians ages 14-39 are infected with chlamydia based on the U.S. National Health and Nutrition Examination Survey. Women are frequently re-infected if their sex partners are not treated.

How do people get chlamydia?

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 (opening to the uterus) 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 or anal sex, men who have sex with men are also at risk for chlamydial infection.

What are the symptoms of chlamydia?

Chlamydia is known as a "silent" disease because about three quarters of infected women and about half of infected men 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 (urine canal). Women who have symptoms might have an abnormal vaginal discharge or a burning sensation when urinating. When the infection spreads from the cervix to the fallopian tubes (tubes that carry fertilized eggs from the ovaries to the uterus), 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.

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 or women who have receptive anal intercourse may acquire chlamydial 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.

What complications can result from untreated chlamydia?

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 up to 40 percent of women with untreated chlamydia. PID 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 the uterus). Women infected with chlamydia are up to five times more likely to become infected with HIV, if exposed.

To help prevent 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 (a new sex partner or multiple sex partners). 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 (Reiter's syndrome).

How does chlamydia affect a pregnant woman and her baby?

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.

How is chlamydia diagnosed?

There are laboratory tests to diagnose chlamydia. Some can be performed on urine, other tests require that a specimen be collected from a site such as the penis or cervix.

What is the treatment for chlamydia?

Chlamydia can be easily treated and cured with antibiotics. A single dose of azithromycin or a week of doxycycline (twice daily) 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 infertility. Retesting should be encouraged for women three to four months after treatment. This is especially true if a woman does not know if her sex partner received treatment.

How can chlamydia be prevented?

The surest way to avoid transmission of STDs 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.

Latex male condoms, when used consistently and correctly, can reduce the risk of transmission of chlamydia.

CDC recommends yearly chlamydia testing of all sexually active women age 25 or younger, older women with risk factors for chlamydial infections (those who have a new sex partner or multiple sex partners), and all pregnant women. An appropriate sexual risk assessment by a health care provider should always be conducted and may indicate more frequent screening for some women.

Any genital symptoms such as an unusual sore, discharge with odor, burning during urination, or bleeding between menstrual cycles could mean an STD infection. If a woman has any of these symptoms, she should stop having sex and consult a health care provider immediately. Treating STDs early can prevent PID. Women who are told they have an STD and are treated for it should notify all of their recent sex partners (sex partners within the preceding 60 days) so they can see a health care provider and be evaluated for STDs. Sexual activity should not resume until all sex partners have been examined and, if necessary, treated.

FOR MORE INFORMATION:

Division of STD Prevention (DSTDP)

Centers for Disease Control and Prevention

http://www.cdc.gov/std/

CDC-INFO Contact Center

1-800-CDC-INFO (1-800-232-4636)

Email: cdcinfo@cdc.gov

American Social Health Association (ASHA)

1-800-783-9877

www.ashastd.org

CDC Fact Sheet

Gonorrhea

What is gonorrhea?

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

How common is gonorrhea?

Gonorrhea is a very common infectious disease. CDC estimates that more than 700,000 persons 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 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-1970s. After several years of stable gonorrhea rates, however, 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.

How do people get gonorrhea?

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.

Who is at risk for gonorrhea?

Gonorrhea is known as a "silent" disease because 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.

What are the signs and 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.

What are the complications of gonorrhea?

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 (PID). About one million women each year in the United States develop PID. 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 or 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.

How does gonorrhea affect a pregnant woman and her baby?

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.

How is gonorrhea diagnosed?

Several laboratory tests are available to diagnose gonorrhea. A doctor or nurse can obtain a sample for testing from the parts of the body likely to be infected (cervix, urethra, rectum, or throat) and send the sample to a laboratory for analysis. Gonorrhea that is present in the cervix or urethra can be diagnosed in a laboratory by testing a urine sample. A quick laboratory test for gonorrhea that can be done in some clinics or doctor's offices is a Gram stain. A Gram stain of a sample from a urethra or a cervix allows the doctor to see the gonorrhea bacterium under a microscope. This test works better for men than for women.

What is the treatment for gonorrhea?

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 had 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.

How can gonorrhea be prevented?

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 care 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.

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Hepatitis B is an infectious liver disease caused by the hepatitis B virus (HBV). There are an estimated 1.25 million chronically infected Americans, of whom 20% to 30% acquired their infection in childhood. About 95% of adults recover spontaneously; however, 90% of young children who get infected with HBV never clear the virus remaining chronically infected with an increased risk of scarring of the liver (cirrhosis) and liver cancer. An estimated 80,000 new cases occur each year and about 5000 deaths annually are related to HBV infections and resultant cirrhosis and liver cancer. *Safe and effective vaccines can prevent hepatitis B.*

TRANSMISSION

Transmission of HBV occurs when blood or body fluids from an infected person enter the body of a person who is not immune. This can occur through:

- having sex, including foreplay, with an infected person without using a latex condom;
- sharing drugs, needles, syringes, water, or "works" when "shooting" drugs;
- getting an injury through needle sticks or sharps that may be contaminated;
- passing the infection from an infected mother to her baby during birth.

The following groups are at risk:

- persons with multiple sex partners or with a diagnosis of a sexually transmitted disease
- men who have sex with men
- sexual contacts of infected persons
- injecting drug users
- household contacts of chronically infected persons
- infants born to infected mothers
- infants and children of immigrants from areas with high rates of HBV infection
- health care and public safety workers

SYMPTOMS

Many newly HBV infected people have no symptoms at all, or they may have flu-like symptoms, including loss of appetite, nausea, fatigue, muscle or joint aches, mild fever, and sometimes jaundice.

DIAGNOSIS

The only way to know if you are currently infected with HBV, have had the infection and recovered, or if you are chronically infected, is to ask your doctor to test you for hepatitis B. Testing might include:

- **HBsAg (hepatitis B surface antigen):** When this is positive, it means that you are currently infected with HBV and are able to pass the infection on to others
- **Anti-HB*c* (antibody to hepatitis B *core* antigen):** When this is positive or reactive, it means that you have HBV infection or had it at some time in the past.
- **Anti-HB*s* (antibody to hepatitis B *surface* antigen):** When this is positive, it means that you are *immune* to HBV infection, either from vaccination or from past infection and cannot pass the disease on to others.
- **IgM anti-HBc:** When this is positive or reactive, it indicates recent infection with HBV.

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TREATMENT

Most people recover on their own within six months of the initial infection. If you remain infected after that period you are considered chronically infected and should be evaluated by your doctor for treatment options. Adefovir dipivoxil, alpha interferon, and lamivudine are 3 drugs licensed for the treatment of persons with chronic hepatitis B. These drugs should not be used by pregnant women. Drinking alcohol can make your liver disease worse.

PREVENTION

Hepatitis B vaccine is the best protection.

Safe and effective Hepatitis B vaccines have been available since 1982.

- A combined vaccine for hepatitis A and B is available for those over 18 years of age.
- Routine vaccination is recommended for young people aged 0 to 18 years.
- Vaccination is also recommended for risk groups of all ages (see risk groups above).
- The usual dosage is three injections given over a 6 months period.

- If you are having sex with more than one steady partner use latex condoms correctly and every time to reduce the potential for infection.
- If you are pregnant, you should get a blood test for hepatitis B. Infants born to HBV-infected mothers should be given hepatitis B immune globulin and vaccine within 12 hours after birth.
- Do not shoot drugs. If you can't stop, never share drugs, needles, syringes, water, or "works," and get vaccinated against hepatitis A and hepatitis B (if not already infected), and get into a treatment program.
- Do not share personal-care items that might have blood on them (e.g., razors, toothbrushes).
- Assess the risk you are taking when getting a tattoo or body piercing. The tools being used may have someone else's infected blood on them.
- If you have or had hepatitis B, do not donate blood, organs, or tissue.
- If you are injecting drugs, make sure the tools you are using are sterile and don’t share with others.

If you are a health care or public safety worker, get vaccinated against hepatitis B, always follow routine barrier precautions, and handle needles and other sharps safely.

HEPATITIS C

Hepatitis C is a viral infection of the liver caused by the hepatitis C virus (HCV), which is found in the blood of persons who have this disease. HCV was discovered in l987 and was previously called “non A, non B hepatitis. In 1992, a highly sensitive antibody blood test was implemented nationwide to identify people exposed to the hepatitis C virus and to screen blood donors. By 1992, an even more sensitive test was used to screen donated blood.

There are six major types or strains of hepatitis C referred to as genotypes. The most common genotype in the United States is genotype 1. Other major genotypes are 2, 3, 4, 5, and 6. Most patients have only one strain of the virus. Patients diagnosed with hepatitis C can have a blood test to determine the genotype of the virus causing their infection.

HCV is a major cause of chronic liver disease, including cirrhosis and liver cancer. In the United States, it is estimated that 4-5 million individuals have been infected with HCV. About 25,000-30,000 new infections occur each year. An estimated 2.7-3.4 million Americans are chronically infected, with many showing no signs or symptoms and are not aware of their infection. Worldwide, approximately 170 million persons are believed to have been chronically infected.

Hepatitis C is a slowly progressing liver disease, usually without symptoms, that may take 20 to 30 years to cause serious liver damage. Between 15% and 45% of infected individuals will clear the virus within six months and liver injury in these individuals resolves completely. Between 55% and 85% of those who are infected have some liver damage but many do not feel sick from the disease. Cirrhosis (scarring of the liver) develops in about 10%-20% of people with chronic infection and liver cancer can develop in 1% to 5% of chronically infected patients over a period of 20 to 30 years. Cirrhosis is almost always present before the onset of liver cancer. The liver disease due to hepatitis C will progress to advanced disease more rapidly when drinking alcohol on a regular basis and when the individual is coinfected with hepatitis B virus (HBV) or HIV.

Liver disease is the tenth leading cause of death among adults in the United States. HCV-associated chronic liver disease is the most frequent indication for liver transplantation among adults.

TRANSMISSION OF HEPATITIS C

HCV is spread primarily by direct contact with human blood of an HCV infected person. HCV is not spread by sneezing, hugging or kissing, coughing, breast feeding, food or water, sharing utensils or drinking glasses, or casual contact. There is also no vaccine to prevent infection or spread of HCV.

- Injection drug use is the primary risk factor for HCV infection. Individuals who injected drugs, even if they did only once many years ago, are at risk and should be tested. HCV is rapidly acquired following the initiation of injection drug use and occurs from sharing needles, syringes, or other equipment associated with drug use. Of persons injecting drugs for at least 2 years, 60%-80% are infected with HCV.
- Recipients of clotting factors or solid organ transplants prior to 1992 are at increased risk or hepatitis C. In the U.S. donated blood has been routinely screened for HCV since 1992 reducing the risk for transmission through donated blood to 1 in 2 million units of blood.
- It appears that HCV is not readily transmitted sexually. In relationships where there is one steady partner, sexual transmission is exceedingly unusual, less than 1.5% over decades in sexually active couples. Sexual transmission may be more likely to happen among those with multiple sex partners, where there is a history of sexually transmitted disease, when condoms are not used, or during sex with trauma.

- There is no evidence indicating that HCV is transmitted through breast milk.
- Consider the risks if you are thinking about getting a tattoo or body piercing. You might get infected, or have been infected, if the needles and other equipment have someone else's infected blood on them or if the artist or piercer does not follow good health-safety practices.
- HCV can be spread by sharing razors or toothbrushes with HCV contaminated blood on them.
- Hemodialysis patients have about an 8% risk of infection.
- The risk of hepatitis C transmission to infants born to an HCV-infected mother is about 3 - 4%. If the mother is coinfected with HCV and HIV the risk of transmission of HCV to her infant is about 17%.

SYMPTOMS

- Most people who are newly infected or chronically infected with HCV do not have symptoms of liver disease. If present, they may be very mild, non specific, and intermittent. They may be flu-like including fatigue, poor appetite, nausea, muscle and joint pains, or a mild discomfort in the area of the liver.

DIAGNOSIS

Early diagnosis is important so you can be checked for liver disease, get treatment if indicated, learn how to protect your liver from further harm, and to learn how you can prevent spreading HCV to others.

- The incubation period for HCV infection varies from 2 to 26 weeks (an average of 45 days). This means that very early infection (less than 2 weeks) may be present but unable to be detected by a blood test.
- HCV infection can be determined by a specific blood test that detects antibodies or an exposure to the virus. A positive antibody test does not differentiate between a current infection and the presence of the actual hepatitis C virus. Tests should be done to confirm HCV infection status and exclude laboratory error.
- Blood tests checking for hepatitis C exposure or for hepatitis C virus are not a part of a routine physical exam. Ask your doctor for a hepatitis C test.

HEPATITIS C TESTING RECOMMENDED FOR PERSON WHO

- Ever injected illegal drugs.
- Received clotting factors made before 1987.
- Received blood or organs before July 1992.
- Ever were treated with hemodialysis.
- Have undiagnosed liver disease.
- Have a needlestick/sharps or mucosal exposure to HCV-positive blood.
- Are 12 to 18 months of age, and are born to HCV-positive women.

MEDICAL EVALUATION AND MANAGEMENT FOR CHRONIC HCV INFECTION

Persons testing positive for the hepatitis C virus should be assessed for evidence of chronic liver disease and for possible treatment by a physician knowledgeable about hepatitis C. Antiviral drugs are available for the treatment of chronic hepatitis C, but they are not suitable or effective for everyone. Persons with chronic liver disease should always be vaccinated against hepatitis A and hepatitis B.

Recent finding indicate that obesity can cause fatty liver and therefore could cause hepatitis C-related liver disease to progress faster. They should also be counseled to abstain from alcohol use. It may be helpful to locate a support group to meet with others who are infected or affected by hepatitis C. Learn all that you can about the disease and how it is affecting you.

TREATMENT

- Combination therapy with pegylated interferon and ribavirin is the treatment of choice resulting in sustained response rates of 35- 50% for patients infected with the most common genotype found in the U.S. [genotype 1] and up to 85% for patients infected with genotypes 2 or 3. Pegylated interferon alone may be a treatment option for those who cannot take ribavirin. Blood tests and liver biopsy findings might determine the need for treatment but liver biopsy is not essential before beginning treatment.
- Interferon must be given by injection and may cause a number of side effects, including flu-like symptoms of headache, fever, fatigue, loss of appetite, nausea, vomiting, depression and thinning of the hair. Interferon can interfere with the production of white blood cells and platelets.
- Ribavirin, given by mouth, can cause birth defects. Women who are pregnant or planning a pregnancy should not take ribavirin. Pregnancy should not be attempted until 6 months after treatment has ended. Ribavirin also causes early destruction of red blood cells and severe anemia requiring frequent monitoring.
- Treatment of children with HCV is under investigation.
- Almost half of all liver transplants in the US are performed for end-stage hepatitis C. However, the virus usually infects the transplanted liver and may require a second transplant.
- Maintain as normal a life as possible, eat a well-balanced diet, exercise, and keep a positive attitude. Learn how to pace yourself. Plan physically exhausting tasks for the morning when your energy level is at its peak. Rest when you feel tired.
- There is no specific evidence proving that herbal supplements relieve hepatitis symptoms or fight the virus. Many herbs are toxic to the liver. The National Institutes of Health (NIH) has established a Complementary Alternative Medicine Committee to evaluate alternative treatments.
- There are many drugs in clinical research that may one day be promising and provide more effective treatments to manage or eradicate the hepatitis C virus.

PREVENTION

- There is NO vaccine to prevent HCV infection. The development of one is the subject of current research. Vaccines for hepatitis A and B do not provide immunity against hepatitis C but are essential to avoid coinfection.
- Don't touch anything that might have the blood of an infected person on it, such as razors, scissors, toothbrushes, nail clippers, tampons, or sanitary napkins. If you are infected with hepatitis C, do not share razors, scissors, nail clippers, or toothbrushes with others. Wipe up blood spills with disposable towels soaked in 1:10 dilution of household bleach and use rubber or latex gloves to protect your hands. All soiled materials should be put in a plastic, leak-proof bag for disposal.
- Don't share anything that might have blood on it; don't share drugs, needles, syringes, or any drug "works."
- Use latex condoms correctly and every time including during foreplay to reduce possible exposure to AIDS, hepatitis B, gonorrhea, Chlamydia or other sexually transmitted diseases.
- Notify your physician and dentist that you are infected with HCV.
- Get vaccinated against hepatitis A and B.
- If you are infected with HCV do not drink alcohol because it accelerates the liver damage.

2006

CDC Fact Sheet

Genital Herpes

What is genital herpes?

Genital herpes is a sexually transmitted disease (STD) 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.

■ How common is genital herpes?

Results of a nationally representative study show that genital herpes infection is common in the United States. Nationwide, at least 45 million people ages 12 and older, or one out of five adolescents and adults, have had genital HSV infection. Over the past decade, the percent of Americans with genital herpes infection in the U.S. has decreased.

Genital HSV-2 infection is more common in women (approximately one out of four women) than in men (almost one out of eight). This may be due to male-to-female transmission being more likely than female-to-male transmission.

■ How do people get genital herpes?

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.

■ What are the signs and symptoms of genital herpes?

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.

What are the complications of genital herpes?

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.

How is genital herpes diagnosed?

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 from 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.

Is there a treatment for herpes?

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.

How can herpes be prevented?

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.

FOR MORE INFORMATION:

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National Herpes Hotline
(919) 361-8488

National Herpes Resource Center
http://www.ashastd.org/hrc

HIV Prevention

SAVES LIVES

HIV and Its Transmission

Research has revealed a great deal of valuable medical, scientific, and public health information about the human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS). The ways in which HIV can be transmitted have been clearly identified. Unfortunately, false information or statements that are not supported by scientific findings continue to be shared widely through the Internet or popular press. Therefore, the Centers for Disease Control and Prevention (CDC) has prepared this fact sheet to correct a few misperceptions about HIV.

How HIV is Transmitted

HIV is spread by sexual contact with an infected person, by sharing needles and/or syringes (primarily for drug injection) with someone who is infected, or, less commonly (and now very rarely in countries where blood is screened for HIV antibodies), through transfusions of infected blood or blood clotting factors. Babies born to HIV-infected women may become infected before or during birth or through breast-feeding after birth.

In the health care setting, workers have been infected with HIV after being stuck with needles containing HIV-infected blood or, less frequently, after infected blood gets into a worker's open cut or a mucous membrane (for example, the eyes or inside of the nose). There has been only one instance of patients being infected by a health care worker in the United States; this involved HIV transmission from one infected dentist to six patients. Investigations have been completed involving more than 22,000 patients of 63 HIV-infected physicians, surgeons, and dentists, and no other cases of this type of transmission have been identified in the United States.

Some people fear that HIV might be transmitted in other ways; however, no scientific evidence to support any of these fears has been found. If HIV were being transmitted through other routes (such as through air, water, or insects), the pattern of reported AIDS cases would be much different from what has been observed. For example, if mosquitoes could transmit HIV infection, many more young children and preadolescents would have been diagnosed with AIDS.

All reported cases suggesting new or potentially unknown routes of transmission are thoroughly investigated by state and local health departments with the assistance, guidance, and laboratory support from CDC. *No additional routes of transmission have been recorded*, despite a national sentinel system designed to detect just such an occurrence.

The following paragraphs specifically address some of the common misperceptions about HIV transmission.

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

HIV in the Environment

Scientists and medical authorities agree that HIV does not survive well in the environment, making the possibility of environmental transmission remote. HIV is found in varying concentrations or amounts in blood, semen, vaginal fluid, breast

milk, saliva, and tears. (See page 3, *Saliva, Tears, and Sweat.*) To obtain data on the survival of HIV, laboratory studies have required the use of artificially high concentrations of laboratory-grown virus. Although these unnatural concentrations of HIV can be kept alive for days or even weeks under precisely controlled and limited laboratory conditions, CDC studies have shown that drying of even these high concentrations of HIV reduces the amount of infectious virus by 90 to 99 percent within several hours. Since the HIV concentrations used in laboratory studies are much higher than those actually found in blood or other specimens, drying of HIV-infected human blood or other body fluids reduces the theoretical risk of environmental transmission to that which has been observed—essentially zero. Incorrect interpretation of conclusions drawn from laboratory studies have unnecessarily alarmed some people.

Results from laboratory studies should not be used to assess specific personal risk of infection because (1) the amount of virus studied is not found in human specimens or elsewhere in nature, and (2) no one has been identified as infected with HIV due to contact with an environmental surface. Additionally, HIV is unable to reproduce outside its living host (unlike many bacteria or fungi, which may do so under suitable conditions), except under laboratory conditions, therefore, it does not spread or maintain infectiousness outside its host.

Households

Although HIV has been transmitted between family members in a household setting, this type of transmission is very rare. These transmissions are believed to have resulted from contact between skin or mucous membranes and infected blood. To prevent even such rare occurrences, precautions, as described in previously published guidelines, should be taken in all settings—including the home—to prevent exposures to the blood of persons who are HIV infected, at risk for HIV infection, or whose infection and risk status are unknown. For example,

- Gloves should be worn during contact with blood or other body fluids that could possibly contain visible blood, such as urine, feces, or vomit.
- Cuts, sores, or breaks on both the care giver's and patient's exposed skin should be covered with bandages.
- Hands and other parts of the body should be washed immediately after contact with blood or other body fluids, and surfaces soiled with blood should be disinfected appropriately.
- Practices that increase the likelihood of blood contact, such as sharing of razors and toothbrushes, should be avoided.
- Needles and other sharp instruments should be used only when medically necessary and handled according to recommendations for health-care settings. (Do not put caps back on needles by hand or remove needles from syringes. Dispose of needles in puncture-proof containers out of the reach of children and visitors.)

Businesses and Other Settings

There is no known risk of HIV transmission to co-workers, clients, or consumers from contact in industries such as food-service establishments (see information on survival of HIV in the environment). Food-service workers known to be infected with HIV need not be restricted from work unless they have other infections or illnesses (such as diarrhea or hepatitis A) for which any food-service worker, regardless of HIV infection status, should be restricted. CDC recommends that all food-service workers follow recommended standards and practices of good personal hygiene and food sanitation.

In 1985, CDC issued routine precautions that all personal-service workers (such as hairdressers, barbers, cosmetologists, and massage therapists) should follow, even though there is no evidence of transmission from a personal-service worker to a client or vice versa. Instruments that are intended to penetrate the skin (such as tattooing and acupuncture needles, ear piercing devices) should be used once and disposed of or thoroughly cleaned and sterilized. Instruments not intended to penetrate the skin but which may become contaminated with

blood (for example, razors) should be used for only one client and disposed of or thoroughly cleaned and disinfected after each use. Personal-service workers can use the same cleaning procedures that are recommended for health care institutions.

CDC knows of no instances of HIV transmission through tattooing or body piercing, although hepatitis B virus has been transmitted during some of these practices. One case of HIV transmission from acupuncture has been documented. Body piercing (other than ear piercing) is relatively new in the United States, and the medical complications for body piercing appear to be greater than for tattoos. Healing of piercings generally will take weeks, and sometimes even months, and the pierced tissue could conceivably be abraded (torn or cut) or inflamed even after healing. Therefore, a theoretical HIV transmission risk does exist if the unhealed or abraded tissues come into contact with an infected person's blood or other infectious body fluid. Additionally, HIV could be transmitted if instruments contaminated with blood are not sterilized or disinfected between clients.

Kissing

Casual contact through closed-mouth or "social" kissing is not a risk for transmission of HIV. Because of the potential for contact with blood during "French" or open-mouth kissing, CDC recommends against engaging in this activity with a person known to be infected. However, the risk of acquiring HIV during open-mouth kissing is believed to be very low. CDC has investigated only one case of HIV infection that may be attributed to contact with blood during open-mouth kissing.

Biting

In 1997, CDC published findings from a state health department investigation of an incident that suggested blood-to-blood transmission of HIV by a human bite. There have been other reports in the medical literature in which HIV appeared to have been transmitted by a bite. Severe trauma with extensive tissue tearing and damage and presence of blood were reported in each of these instances. Biting is not a common way of transmitting HIV. In fact, there are numerous reports of bites that did *not* result in HIV infection.

Saliva, Tears, and Sweat

HIV has been found in saliva and tears in very low quantities from some AIDS patients. It is important to understand that finding a small amount of HIV in a body fluid does not necessarily mean that HIV can be *transmitted* by that body fluid. HIV has *not* been recovered from the sweat of HIV-infected persons. Contact with saliva, tears, or sweat has never been shown to result in transmission of HIV.

Insects

From the onset of the HIV epidemic, there has been concern about transmission of the virus by biting and bloodsucking insects. However, studies conducted by researchers at CDC and elsewhere have shown no evidence of HIV transmission through insects—even in areas where there are many cases of AIDS and large populations of insects such as mosquitoes. Lack of such outbreaks, despite intense efforts to detect them, supports the conclusion that HIV is not transmitted by insects.

The results of experiments and observations of insect biting behavior indicate that when an insect bites a person, it does not inject its own or a previously bitten person's or animal's blood into the next person bitten. Rather, it injects saliva, which acts as a lubricant or anticoagulant so the insect can feed efficiently. Such diseases as yellow fever and malaria are transmitted through the saliva of specific species of mosquitoes. However, HIV lives for only a short time inside an insect and, unlike organisms that are transmitted via insect bites, HIV does not reproduce (and does not survive) in insects. Thus, even if the virus enters a mosquito or another sucking or biting insect, the insect does not become infected and cannot transmit HIV to the next human it feeds on or bites. HIV is not found in insect feces.

There is also no reason to fear that a biting or bloodsucking insect, such as a mosquito, could transmit HIV from one person to another through HIV-infected blood left on its mouth parts. Two factors serve to explain why this is so—first, infected people do not have constant, high levels of HIV in their bloodstreams and, second, insect mouth parts do not retain large amounts of blood on their surfaces. Further, scientists who study insects have determined that biting insects normally do not travel from one person to the next immediately after ingesting blood. Rather, they fly to a resting place to digest this blood meal.

Effectiveness of Condoms

Condoms are classified as medical devices and are regulated by the Food and Drug Administration (FDA). Condom manufacturers in the United States test each latex condom for defects, including holes, before it is packaged. The proper and consistent use of latex or polyurethane (a type of plastic) condoms when engaging in sexual intercourse—vaginal, anal, or oral—can greatly reduce a person's risk of acquiring or transmitting sexually transmitted diseases, including HIV infection.

There are many different types and brands of condoms available—however, only latex or polyurethane condoms provide a highly effective mechanical barrier to HIV. In laboratories, viruses occasionally have been shown to pass through natural membrane ("skin" or lambskin) condoms, which may contain natural pores and are therefore not recommended for disease prevention (they are documented to be effective for contraception). Women may wish to consider using the female condom when a male condom cannot be used.

For condoms to provide maximum protection, they must be used *consistently* (every time) and *correctly*. Several studies of correct and consistent condom use clearly show that latex condom breakage rates in this country are less than 2 percent. Even when condoms do break, one study showed that more than half of such breaks occurred prior to ejaculation.

When condoms are used reliably, they have been shown to prevent pregnancy up to 98 percent of the time among couples using them as their only method of contraception. Similarly, numerous studies among sexually active people have demonstrated that a properly used latex condom provides a high degree of protection against a variety of sexually transmitted diseases, including HIV infection.

For more detailed information about condoms, see the CDC publication *"Male Latex Condoms and Sexually Transmitted Diseases."*

CDC's Response

CDC is committed to providing the scientific community and the public with accurate and objective information about HIV infection and AIDS. It is vital that clear information on HIV infection and AIDS be readily available to help prevent further transmission of the virus and to allay fears and prejudices caused by misinformation. For a complete description of CDC's HIV/AIDS prevention programs, see *"Facts about CDC's Role in HIV and AIDS Prevention."*

For more information...

CDC National AIDS Hotline:
1-800-342-AIDS (2437)
Spanish: 1-800-344-SIDA (7432) (HIV and STDs)
Deaf: 1-800-243-7889

CDC National Prevention Information Network:
P.O. Box 6003
Rockville, Maryland 20849-6003
1-800-458-5231

Internet Resources:
DHAP: http://www.cdc.gov/hiv
NCHSTP: http://www.cdc.gov/nchstp/od/nchstp.html
NPIN: http://www.cdcnpin.org

HIV/AIDS among Youth

1-800-CDC-INFO (232-4636)
In English, en Español
24 Hours/Day
cdcinfo@cdc.gov
http://www.cdc.gov/hiv

June 2006

Young people in the United States are at persistent risk for HIV infection. This risk is especially notable for youth of minority races and ethnicities. Continual HIV prevention outreach and education efforts, including programs on abstinence and on delaying the initiation of sex, are required as new generations replace the generations that benefited from earlier prevention strategies. Unless otherwise noted, this fact sheet defines youth, or young people, as persons who are 13–24 years of age.

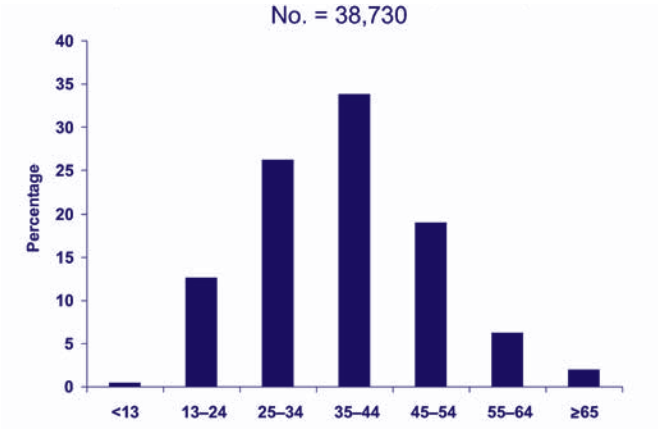
STATISTICS

HIV/AIDS in 2004

The following are based on data from the 35 areas with long-term, confidential name-based HIV reporting.*

- An estimated 4,883 young people received a diagnosis of HIV infection or AIDS, representing about 13% of the persons given a diagnosis during that year [1].
- HIV infection progressed to AIDS more slowly among young people than among all persons with a diagnosis of HIV infection. The following are the proportions of persons in whom HIV infection did not progress to AIDS within 12 months after diagnosis of HIV infection:
  - 81% of persons aged 15–24
  - 70% of persons aged 13–14
  - 61% of all persons
- African Americans were disproportionately affected by HIV infection, accounting for 55% of all HIV infections reported among persons aged 13–24 [2].
- Young men who have sex with men (MSM), especially those of minority races or ethnicities, were at high risk for HIV infection. In the 7 cities that participated in CDC's Young Men's Survey during 1994–1998, 14% of African American MSM and 7% of Hispanic MSM aged 15–22 were infected with HIV [3].
- During 2001–2004, in the 33 states with long-term, confidential name-based HIV reporting, 62% of the 17,824 persons 13–24 years of age given a diagnoses of HIV/AIDS were males, and 38% were females.

Age of persons with HIV infection or AIDS diagnosed during 2004



Note. Based on data from 35 areas with long-term, confidential name-based HIV reporting.

AIDS in 2004

- An estimated 2,174 young people received a diagnosis of AIDS (5.1% of the estimated total

*See box on page 5 for a list of the 35 areas.

of 42,514 AIDS diagnoses), and 232 young people with AIDS died [1].

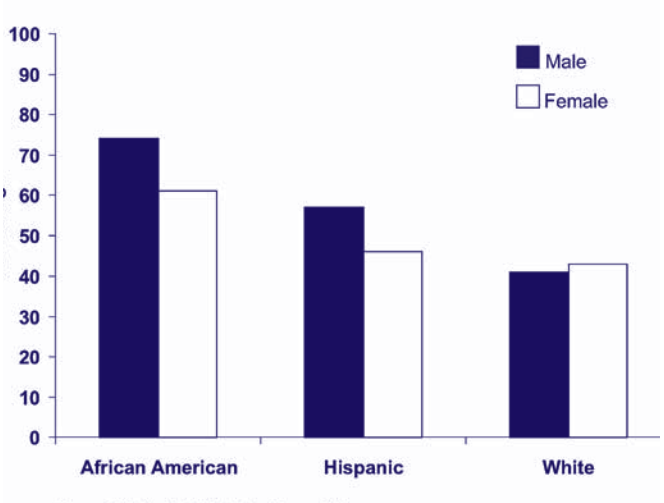
- An estimated 7,761 young people were living with AIDS, a 42% increase since 2000, when 5,457 young people were living with AIDS [1].
- Young people for whom AIDS was diagnosed during 1996–2004 lived longer than persons with AIDS in any other age group except those younger than 13 years. Nine years after receiving a diagnosis of AIDS, 76% of those aged 13–24 were alive, compared with
  - 81% of those younger than age 13
  - 74% of those aged 25–34
  - 70% of those aged 35–44
  - 63% of those aged 45–54
  - 53% of those aged 55 and older [1].
- Since the beginning of the epidemic, an estimated 40,059 young people in the United States had received a diagnosis of AIDS, and an estimated 10,129 young people with AIDS had died. They accounted for about 4% of the estimated total of 944,306 AIDS diagnoses and 2% of the 529,113 deaths of people with AIDS [1].

RISK FACTORS AND BARRIERS TO PREVENTION

Sexual Risk Factors

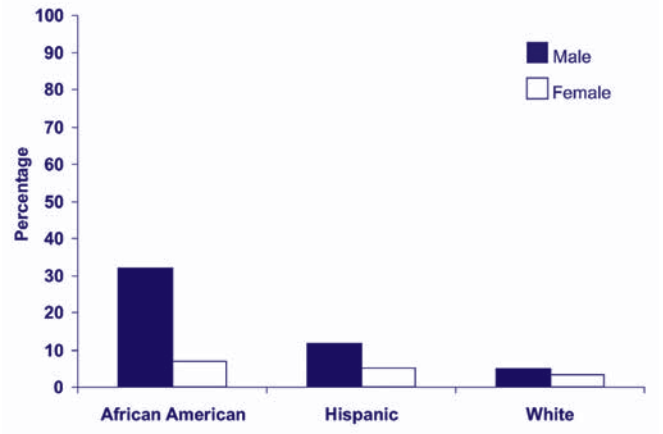
Early age at sexual initiation. According to CDC's Youth Risk Behavioral Survey (YRBS), many young people begin having sexual intercourse at early ages: 47% of high school students have had sexual intercourse, and 7.4% of them reported first sexual intercourse before age 13 [4]. HIV/AIDS education needs to take place at correspondingly young ages, before young people engage in sexual behaviors that put them at risk for HIV infection.

High school students reporting ever having had sexual intercourse, 2003



Source. CDC's Youth Risk Behavioral Survey, 2003. (See reference 4.)

High school students reporting sexual intercourse for the first time before age 13, 2003



Source. CDC's Youth Risk Behavioral Survey, 2003. (See reference 4.)

Heterosexual transmission. Young women, especially those of minority races or ethnicities, are increasingly at risk for HIV infection through heterosexual contact. According to data from a CDC study of HIV prevalence among disadvantaged youth during the early to mid-1990s, the rate of HIV prevalence among young women aged 16–21 was 50% higher than the rate among young men in that age group [5]. African American women in this study were 7 times

as likely as white women and 8 times as likely as Hispanic women to be HIV-positive. Young women are at risk for sexually transmitted HIV for several reasons, including biologic vulnerability, lack of recognition of their partners' risk factors, inequality in relationships, and having sex with older men who are more likely to be infected with HIV.

MSM. Young MSM are at high risk for HIV infection, but their risk factors and the prevention barriers they face differ from those of persons who become infected through heterosexual contact. According to a CDC study of 5,589 MSM, 55% of young men (aged 15–22) did not let other people know they were sexually attracted to men [6]. MSM who do not disclose their sexual orientation are less likely to seek HIV testing, so if they become infected, they are less likely to know it. Further, because MSM who do not disclose their sexual orientation are likely to have 1 or more female sex partners, MSM who become infected may transmit the virus to women as well as to men. In a small study of African American MSM college students and non-students in North Carolina, the participants had sexual risk factors for HIV infection, and 20% had a female sex partner during the preceding 12 months [7].

Sexually transmitted diseases (STDs). The presence of an STD greatly increases a person's likelihood of acquiring or transmitting HIV [8]. Some of the highest STD rates in the country are those among young people, especially young people of minority races and ethnicities [9].

Substance Use

Young people in the United States use alcohol, tobacco, and other drugs at high rates [10]. Both casual and chronic substance users are more likely to engage in high-risk behaviors, such as unprotected sex, when they are under the influence of drugs or alcohol [11]. Runaways and other homeless young people are at high risk for HIV infection if they are exchanging sex for drugs or money.

Lack of Awareness

Research has shown that a large proportion of young people are not concerned about becoming infected with HIV [12]. Adolescents need accurate, age-appropriate information about HIV infection and AIDS, including how to talk with their parents or other trusted adults about HIV and AIDS, how to reduce or eliminate risk factors, how to talk with a potential partner about risk factors, where to get tested for HIV, how to use a condom correctly. Information should also include the concept that abstinence is the only 100% effective way to avoid infection.

Poverty and Out-of-School Youth

Nearly 1 in 4 African Americans and 1 in 5 Hispanics live in poverty [13]. The socioeconomic problems associated with poverty, including lack of access to high-quality health care, can directly or indirectly increase the risk for HIV infection [14]. Young people who have dropped out of school are more likely to become sexually active at younger ages and to fail to use contraception [15].

The Coming of Age of HIV-Positive Children

Many young people who contracted HIV through perinatal transmission are facing decisions about becoming sexually active. They will require ongoing counseling and prevention education to ensure that they do not transmit HIV.

PREVENTION

In the United States, the annual number of new HIV infections has declined from a peak of more than 150,000 in the mid-1980s and has stabilized since the late 1990s at approximately 40,000. Populations of minority races or ethnicities are disproportionately affected by the HIV epidemic. To reduce further the incidence of HIV, CDC announced a new initiative, Advancing HIV Prevention (http://www.cdc.gov/hiv/topics/prev_prog/AHP), in 2003. This initiative comprises

4 strategies: making HIV testing a routine part of medical care, implementing new models for diagnosing HIV infections outside medical settings, preventing new infections by working with HIV-infected persons and their partners, and further decreasing perinatal HIV transmission.

Through the Minority AIDS Initiative (http://www.cdc.gov/programs/hiv08.htm), CDC explores ways to reduce health disparities in communities made up of persons of minority races or ethnicities who are at high risk for HIV. These funds are used to address the high-priority HIV prevention needs in such communities.

CDC provides 9 awards to community-based organizations (CBOs) that focus primarily on youth and provides indirect funding through state, territorial, and local health departments to organizations serving youth. Of these 9 awards, 5 are focused on African Americans, 3 on Hispanics, 1 on Asians and Pacific Islanders, and 1 on whites. The following are some CDC-tested prevention programs that state and local health departments and CBOs can provide for youth.

- Teens Linked to Care, is focused on young people aged 13–29 who are living with HIV.
- Street Smart, is an HIV/AIDS and STD prevention program for runaway and homeless youth.
- PROMISE (Peers Reaching Out and Modeling Intervention Strategies for HIV/AIDS Risk Reduction in their Community), is a community-level HIV prevention intervention that relies on role-model stories and peers from the community.
- Adult Identity Mentoring project, which encourages students to articulate personal goals and then teaches them the skills required to achieve those goals, can be effective in helping at-risk youth delay the initiation of sex [16].

CDC research has shown that early, clear parent-child communication regarding values and expectations about sex is an important step in helping adolescents delay sexual initiation and make responsible decisions about sexual behaviors later in life. Parents are in a unique position to engage their children in conversations about HIV, STD, and teen pregnancy prevention because the conversations can be ongoing and timely [17].

Schools also can be important partners for reaching youth before high-risk behaviors are established, as evidenced by the YRBS finding that 88% of high school students in the United States reported having been taught about AIDS or HIV infection in school.

Overall, a multifaceted approach to HIV/AIDS prevention, which includes individual, peer, familial, school, church, and community programs, is necessary to reduce the incidence of HIV/AIDS in young people. For Guidelines for Effective School Health Education to Prevent the Spread of AIDS, visit http://www.cdc.gov/HealthyYouth/sexualbehaviors/guidelines/guidelines.htm.

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Understanding HIV and AIDS Data

AIDS surveillance: Through a uniform system, CDC receives reports of AIDS cases from all US states and territories. Since the beginning of the epidemic, these data have been used to monitor trends because they are representative of all areas. The data are statistically adjusted for reporting delays and for the redistribution of cases initially reported without risk factors. As treatment has become more available, trends in new AIDS diagnoses no longer accurately represent trends in new HIV infections; these data now represent persons who are tested late in the course of HIV infection, who have limited access to care, or in whom treatment has failed.

HIV surveillance: Monitoring trends in the HIV epidemic today requires collecting information on HIV cases that have not progressed to AIDS. Areas with confidential name-based HIV infection reporting requirements use the same uniform system for data collection on HIV cases as for AIDS cases. A total of 35 areas—the US Virgin Islands, Guam, and 33 states (Alabama, Alaska, Arizona, Arkansas, Colorado, Florida, Idaho, Indiana, Iowa, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Jersey, New York, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, West Virginia, Wisconsin, and Wyoming)—have collected these data for at least 5 years, providing sufficient data to monitor HIV trends and to estimate risk behaviors for HIV infection. Recently, 9 additional areas have begun confidential name-based HIV surveillance, and data from these areas will be included in coming years.

***HIV/AIDS*:** This term includes persons with a diagnosis of HIV infection (not AIDS), a diagnosis of HIV infection and a later diagnosis of AIDS, or concurrent diagnoses of HIV infection and AIDS.

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For more information . . .

CDC HIV/AIDS
http://www.cdc.gov/hiv
CDC HIV/AIDS resources

CDC-INFO
1-800-232-4636
Information about personal risk and where to get an HIV test

CDC National HIV Testing Resources
http://www.hivtest.org
Location of HIV testing sites

CDC National Prevention Information Network (NPIN)
1-800-458-5231
http://www.cdcnpin.org
CDC resources, technical assistance, and publications

AIDSinfo
1-800-448-0440
http://www.aidsinfo.nih.gov
Resources on HIV/AIDS treatment and clinical trials

CDC Fact Sheet

Genital HPV

What is genital HPV infection?

Genital human papillomavirus (HPV) is the most common sexually transmitted infection (STI). There are more than 40 HPV types that can infect the genital areas of men and women, including the skin of the penis, vulva (area outside the vagina), and anus, and the linings of the vagina, cervix, and rectum. You cannot see HPV. Most people who become infected with HPV do not even know they have it.

What are the symptoms and potential consequences of HPV?

Most people with HPV do not develop symptoms or health problems. But sometimes, certain types of HPV can cause genital warts in men and women. Other HPV types can cause cervical cancer and other less common cancers, such as cancers of the vulva, vagina, anus, and penis. The types of HPV that can cause genital warts are not the same as the types that can cause cancer.

HPV types are often referred to as "low-risk" (wart-causing) or "high-risk" (cancer-causing), based on whether they put a person at risk for cancer. In 90% of cases, the body's immune system clears the HPV infection naturally within two years. This is true of both high-risk and low-risk types.

Genital warts usually appear as small bumps or groups of bumps, 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. Warts may appear within weeks or months after sexual contact with an infected person. Or, they may not appear at all. If left untreated, genital warts may go away, remain unchanged, or increase in size or number. They will not turn into cancer.

Cervical cancer does not have symptoms until it is quite advanced. For this reason, it is important for women to get screened regularly for cervical cancer.

Other less common HPV-related cancers, such as cancers of the vulva, vagina, anus and penis, also may not have signs or symptoms until they are advanced.

How do people get genital HPV?

Genital HPV is passed on through genital contact, most often during vaginal and anal sex. A person can have HPV even if years have passed since he or she had sex. Most infected persons do not realize they are infected or that they are passing the virus to a sex partner.

Very rarely, a pregnant woman with genital HPV can pass HPV to her baby during vaginal delivery. In these cases, the child may develop warts in the throat or voice box – a condition called *recurrent respiratory papillomatosis* (RRP).

How does HPV cause genital warts and cancer?

HPV can cause normal cells on infected skin or mucous membranes to turn abnormal. Most of the time, you cannot see or feel these cell changes. In most cases, the body fights off HPV naturally and the infected cells then go back to normal.

- Sometimes, low-risk types of HPV can cause visible changes that take the form of genital warts.
- If a high-risk HPV infection is not cleared by the immune system, it can linger for many years and turn abnormal cells into cancer over time. About 10% of women with high-risk HPV on their cervix will develop long-lasting HPV infections that put them at risk for cervical cancer. Similarly, when high-risk HPV lingers and infects the cells of the penis, anus, vulva, or vagina, it can cause cancer in those areas. But these cancers are much less common than cervical cancer.

How common are HPV and related diseases?

HPV infection. Approximately 20 million Americans are currently infected with HPV, and another 6.2 million people become newly infected each year. At least 50% of sexually active men and women acquire genital HPV infection at some point in their lives.

Genital warts. About 1% of sexually active adults in the U.S. have genital warts at any one time.

Cervical cancer. The American Cancer Society estimates that in 2008, 11,070 women will be diagnosed with cervical cancer.

Other HPV-related cancers are much less common than cervical cancer. The American Cancer Society estimates that in 2008, there will be:

- 3,460 women diagnosed with vulvar cancer
- 2,210 women diagnosed with vaginal and other female genital cancers
- 1,250 men diagnosed with penile and other male genital cancers
- 3,050 women and 2,020 men diagnosed with anal cancer.

Certain populations may be at higher risk for HPV-related cancers, such as gay and bisexual men, and individuals with weak immune systems (including those who have HIV/AIDS).

RRP is very rare. It is estimated that less than 2,000 children get RRP every year.

How can people prevent HPV?

A vaccine can now protect females from the four types of HPV that cause most cervical cancers and genital warts. The vaccine is recommended for 11 and 12 year-old girls. It is also recommended for girls and women age 13 through 26 who have not yet been vaccinated or completed the vaccine series.

For those who choose to be sexually active, condoms may lower the risk of HPV, if used all the time and the right way. Condoms may also lower the risk of developing HPV-related diseases, such as genital warts and cervical cancer. But HPV can infect areas that are not covered by a condom—so condoms may not *fully* protect against HPV. So the only sure way to prevent HPV is to avoid all sexual activity.

Individuals can also lower their chances of getting HPV by being in a mutually faithful relationship with someone who has had no or few sex partners. However, even people with only one lifetime sex partner can get HPV. For those who are not in long-term mutually monogamous relationships, limiting the number of sex partners and choosing a partner who has had no or few prior sex partners may lower the risk of infection. But it may not be possible to determine if a partner who has been sexually active in the past is currently infected.

How can people prevent HPV-related diseases?

There are important steps females can take to prevent **cervical cancer**. The HPV vaccine can protect against most cervical cancers (see above). Cervical cancer can also be prevented with routine cervical cancer screening and follow-up of abnormal results. The Pap test can identify abnormal or pre-cancerous changes in the cervix so that they can be removed before cancer develops. An HPV DNA test, which can find high-risk HPV on a woman's cervix, may also be used with a Pap test in certain cases. The HPV test can help healthcare professionals decide if more tests or treatment are needed. Even women who got the vaccine when they were younger need regular cervical cancer screening because the vaccine does not protect against all cervical cancers.

There is currently no vaccine licensed to prevent HPV-related diseases in males. Studies are now being done to find out if the vaccine is also safe in men, and if it can protect them against HPV and related conditions. The FDA will consider licensing the vaccine for boys and men if there is proof that it is safe and effective for them. There is also no approved screening test to find early signs of penile or anal cancer. Some experts recommend yearly anal Pap tests for gay and bisexual men and for HIV-positive persons because anal cancer is more common in these populations. Scientists are still studying how best to screen for penile and anal cancers in those who may be at highest risk for those diseases.

Generally, cesarean delivery is not recommended for women with genital warts to prevent RRP in their babies. This is because it is unclear whether cesarean delivery actually prevents RRP in infants and children.

Is there a test for HPV?

The HPV test on the market is only used as part of cervical cancer screening. There is no general test for men or women to check one's overall "HPV status." HPV usually goes away on its own, without causing health problems. So an HPV infection that is found today will most likely not be there a year or two from now. For this reason, there is no need to be tested just to find out if you have HPV now. However, you should get tested for signs of disease that HPV can cause, such as cervical cancer.

- **Genital warts** are diagnosed by visual inspection. Some health care providers may use acetic acid, a vinegar solution, to help identify flat warts. But this is not a sensitive test so it may wrongly identify normal skin as a wart.
- **Cervical cell changes** can be identified by routine Pap tests. The HPV test can identify high-risk HPV types on a woman's cervix, which can cause cervical cell changes and cancer.
- As noted above, there is currently no approved test to find HPV or related cancers in men. But HPV is very common and HPV-related cancers are very rare in men.

Is there a treatment for HPV or related diseases?

There is no treatment for the virus itself, but a healthy immune system can usually fight off HPV naturally. There are treatments for the diseases that HPV can cause:

Visible genital warts can be removed by patient-applied medications, or treated by a health care provider. Some individuals choose to forego treatment to see if the warts will disappear on their own. No one treatment is better than another.

Cervical cancer is most treatable when it is diagnosed and treated early. But women who get routine Pap testing and follow up as needed can identify problems before cancer develops. Prevention is always better than treatment.

Other HPV-related cancers are also more treatable when diagnosed and treated early.

FOR MORE INFORMATION:

Centers for Disease Control and Prevention
www.cdc.gov/std
www.cdc.gov/vaccines/vpd-vac/hpv
www.cdc.gov/cancer/cervical

CDC-INFO Contact Center
1-800-CDC-INFO (1-800-232-4636)
Email: cdcinfo@cdc.gov

American Social Health Association (ASHA)
National HPV and Cervical Cancer Prevention Resource Center
1-800-783-9877
www.ashastd.org/hpvccrc/index.html

CONTENT UPDATED: DECEMBER, 2007

HPV Vaccine Questions & Answers

In June 2006, the Advisory Committee on Immunization Practices (ACIP) voted to recommend the first vaccine developed to prevent cervical cancer and other diseases in females caused by certain types of genital human papillomavirus (HPV). The vaccine, Gardasil®, protects against four HPV types, which together cause 70% of cervical cancers and 90% of genital warts.

The Food and Drug Administration (FDA) recently licensed this vaccine for use in girls/women, ages 9-26 years. The vaccine is given through a series of three shots over a six-month period.

WHO SHOULD GET THIS VACCINE

The HPV vaccine is recommended for 11-12 year-old girls, and can be given to girls as young as 9. The vaccine is also recommended for 13-26 year-old girls/women who have not yet received or completed the vaccine series.

These recommendations have been proposed by the ACIP—a national group of experts that advises the Centers for Disease Control and Prevention (CDC) on vaccine issues. These recommendations are now being considered by CDC.

Why is the HPV vaccine recommended for such young girls?

Ideally, females should get the vaccine before they are sexually active. This is because the vaccine is most effective in girls/women who have *not* yet acquired any of the four HPV types covered by the vaccine. Girls/women who have not been infected with any of those four HPV types will get the full benefits of the vaccine.

Will sexually active females benefit from the vaccine?

Females who are sexually active may also benefit from the vaccine. But they may get less benefit from the vaccine since they may have already acquired one or more HPV type(s) covered by the vaccine. Few young women are infected with all four of these HPV types. So they would still get protection from those types they have not acquired. Currently, there is no test available to tell if a girl/woman has had any or all of these four HPV types.

Why is the HPV vaccine only recommended for girls/women ages 9 to 26?

The vaccine has been widely tested in 9-to-26 year-old girls/women. But research on the vaccine's safety and efficacy has only recently begun with women older than 26 years of age. The FDA will consider licensing the vaccine for these women when there is research to show that it is safe and effective for them.

What about vaccinating boys?

We do not yet know if the vaccine is effective in boys or men. It is possible that vaccinating males will have health benefits for them by preventing genital warts and rare cancers, such as penile and anal cancer. It is also possible that vaccinating boys/men will have indirect health benefits for girls/women. Studies are now being done to find out if the vaccine works to prevent HPV infection and disease in males. When more information is available, this vaccine may be licensed and recommended for boys/men as well.

Should pregnant women get the vaccine?

The vaccine is not recommended for pregnant women. There has been limited research looking at vaccine safety for pregnant women and their unborn babies. So far, studies suggest that the vaccine has *not* caused health problems during pregnancy, nor has it caused health problems for the infant-- but more research is still needed. For now, pregnant women should complete their pregnancy before getting the vaccine. If a woman finds out she is pregnant after she has started getting the vaccine series, she should complete her pregnancy before finishing the three-dose series.

EFFICACY OF THE HPV VACCINE

Studies have found the vaccine to be almost 100% effective in preventing diseases caused by the four HPV types covered by the vaccine– including precancers of the cervix, vulva and vagina, and genital warts. The vaccine has mainly been studied in young women who had not been exposed to any of the four HPV types in the vaccine. The vaccine was less effective in young women who had already been exposed to one of the HPV types covered by the vaccine.

This vaccine does not treat existing HPV infections, genital warts, precancers or cancers.

How long does vaccine protection last? Will a booster shot be needed?

The length of vaccine protection (immunity) is usually not known when a vaccine is first introduced. So far, studies have followed women for five years and found that women are still protected. More research is being done to find out how long protection will last, and if a booster vaccine is needed years later.

What does the vaccine *not* protect against?

Because the vaccine does not protect against *all* types of HPV, it will not prevent all cases of cervical cancer or genital warts. About 30% of cervical cancers will *not* be prevented by the vaccine, so it will be important for women to continue getting screened for cervical cancer (regular Pap tests). Also, the vaccine does *not* prevent about 10% of genital warts—nor will it prevent other sexually transmitted infections (STIs). So it will still be important for sexually active adults to reduce exposure to HPV and other STIs.

Will girls/women be protected against HPV and related diseases, even if they don't get all three doses?

It is not yet known how much protection girls/women would get from receiving only one or two doses of the vaccine. For this reason, it is very important that girls/women get *all three doses* of the vaccine.

SAFETY OF THE HPV VACCINE

The FDA has licensed the HPV vaccine as safe and effective. This vaccine has been tested in over 11,000 females (ages 9-26 years) around the world. These studies have shown no serious side effects. The most common side effect is soreness at the injection site. CDC, working with the FDA, will continue to monitor the safety of the vaccine after it is in general use.

Does this vaccine contain thimerosal or mercury?

No. There is no thimerosal or mercury in the HPV vaccine. It is made up of proteins from the outer coat of the virus (HPV). There is no infectious material in this vaccine.

COST AND COVERAGE OF THE HPV VACCINE

The retail price of the vaccine is $120 per dose ($360 for full series).

Will the HPV vaccine be covered by insurance plans?

While some insurance companies may cover the vaccine, others may not. Most large insurance plans usually cover the costs of recommended vaccines. However, there is often a short lag-time after a vaccine is recommended, before it is available and covered by health plans.

What kind of government programs may be available to cover HPV vaccine?

Federal health programs such as *Vaccines for Children* (VFC) will cover the HPV vaccine. The VFC program provides free vaccines to children and teens under 19 years of age, who are either uninsured, Medicaid-eligible, American Indian, or Alaska Native. There are over 45,000 sites that provide VFC vaccines, including hospitals, private clinics, and public clinics. The VFC Program also allows children and teens to get VFC vaccines through Federally Qualified Health Centers or Rural Health Centers, if their private health insurance does not cover the vaccine. For more information about the VFC, visit www.cdc.gov/nip/vfc/Default.htm

Some states also provide free or low-cost vaccines at public health department clinics to people without health insurance coverage for vaccines.

WHAT VACCINATED GIRLS/WOMEN NEED TO KNOW

The HPV vaccine is given through a series of three shots over a 6-month period. The second and third doses should be given 2 and 6 months (respectively) after the first dose.

Will girls/women who have been vaccinated still need cervical cancer screening?

Yes. There are three reasons why women will still need regular cervical cancer screening. First, the vaccine will NOT protect against all types of HPV that cause cervical cancer, so vaccinated women will still be at risk for some cancers. Second, some women may not get all required doses of the vaccine (or they may not get them at the right times), so they may not get the vaccine's full benefits. Third, women may not get the full benefit of the vaccine if they receive it after they've already acquired one of the four HPV types.

Should girls/women be screened before getting vaccinated?

No. Girls/women do not need to get an HPV test or Pap test to find out if they should get the vaccine. An HPV test or a Pap test can tell that a woman may have HPV, but these tests cannot tell the specific HPV type(s) that a woman has. Even girls/women with one HPV type could get protection from the other vaccine HPV types they have not yet acquired.

Will girls be required to get vaccinated before they enter school?

There are no federal laws that require children or adolescents to get vaccinated. All school and daycare entry laws are state laws—so they vary from state to state. To find out what vaccines are needed for children or teens to enter school or daycare in your state, check with your state health department or board of education.

THE BASICS ABOUT HPV AND CERVICAL CANCER

Genital HPV is a common virus that is passed on through genital contact, most often during vaginal and anal sex. About 40 types of HPV can infect the genital areas of men and women. While most HPV types cause no symptoms and go away on their own, some types can cause cervical cancer in women. These types also have been linked to other less common genital cancers— including cancers of the anus, vagina, and vulva (area around the opening of the vagina). Other types of HPV can cause warts in the genital areas of men and women, called genital warts.

How is HPV related to cervical cancer?

Some types of HPV can infect a woman's cervix (lower part of the womb) and cause the cells to change. Most of the time, HPV goes away on its own. When HPV is gone, the cervix cells go back to normal. But sometimes, HPV does not go away. Instead, it lingers (persists) and continues to change the cells on a woman's cervix. These cell changes (or "precancers") can lead to cancer over time, if they are not treated.

How common is HPV?

At least 50% of sexually active people will get HPV at some time in their lives. Every year in the United States (U.S.), about 6.2 million people get HPV. HPV is most common in young women and men who are in their late teens and early 20s.

Anyone who has ever had genital contact with another person can get HPV. Both men and women can get it – and pass it on to their sex partners- without even realizing it.

How common is cervical cancer in the U.S.? How many women die from it?

The American Cancer Society estimates that in 2006, over 9,700 women will be diagnosed with cervical cancer and 3,700 women will die from this cancer in the U.S.

How common are Genital Warts?

About 1% of sexually active adults in the U.S. (about 1 million people) have visible genital warts at any point in time.

Is HPV the same thing as HIV or Herpes?

HPV is NOT the same as HIV or Herpes (Herpes simplex virus or HSV). While these are all viruses that can be sexually transmitted—HIV and HSV do not cause the same symptoms or health problems as HPV.

Can HPV and its associated diseases be treated?

There is no treatment for HPV. But there *are* treatments for the health problems that HPV can cause, such as genital warts, cervical cell changes, and cancers of the cervix, vulva, vagina and anus.

OTHER WAYS TO PREVENT CERVICAL CANCER AND HPV

Another HPV vaccine is in the final stages of clinical testing, but it is not yet licensed. This vaccine would protect against the two types of HPV that cause most (70%) cervical cancers.

Are there other ways to prevent cervical cancer?

Regular Pap tests and follow-up can prevent most, but not all, cases of cervical cancer. Pap tests can detect cell changes in the cervix *before* they turn into cancer. Pap tests can also detect most, but not all, cervical cancers at an early, curable stage. Most women diagnosed with cervical cancer in the U.S. have either never had a Pap test, or have not had a Pap test in the last 5 years.

There is also an HPV DNA test available for use with the Pap test, as part of cervical cancer screening. This test is used for women over 30 or for women who get an unclear (borderline) Pap test result. While this test can tell if a woman has HPV on her cervix, it cannot tell *which* types of HPV she has.

Are there other ways to prevent HPV?

The only sure way to prevent HPV is to abstain from all sexual activity. Sexually active adults can reduce their risk by being in a mutually faithful relationship with someone who has had no other or few sex partners, or by limiting their number of sex partners. But even persons with only one lifetime sex partner can get HPV, if their partner has had previous partners.

It is not known how much protection condoms provide against HPV, since areas that are not covered by a condom can be exposed to the virus. However, condoms may reduce the risk of genital warts and cervical cancer. They can also reduce the risk of HIV and some other STIs, when used all the time and the right way.

WHERE CAN I GET MORE INFORMATION?

CDC HPV Information - http://www.cdc.gov/std/hpv/
Order Publications at http://www.cdc.gov/std/pubs/

STD information and referrals to STD Clinics
CDC-INFO
1-800-CDC-INFO (800-232-4636)
TTY: 1-888-232-6348
In English, en Español

American Cancer Society (ACS) - http://www.cancer.org

American Social Health Association (ASHA) - www.ashastd.org
P. O. Box 13827
Research Triangle Park, NC 27709-3827
1-800-783-9877

Printable versions of this and other STD fact sheets are available at: www.cdc.gov/std/healthcomm/fact_sheets.htm

CDC
August 2006

CDC Fact Sheet

STDs & Pregnancy

Can pregnant women become infected with STDs?

Yes, women who are pregnant can become infected with the same sexually transmitted diseases (STDs) as women who are not pregnant. Pregnancy does not provide women or their babies any protection against STDs. The consequences of an STD can be significantly more serious, even life threatening, for a woman and her baby if the woman becomes infected with an STD while pregnant. It is important that women be aware of the harmful effects of STDs and know how to protect themselves and their children against infection.

How common are STDs in pregnant women in the United States?

Some STDs, such as genital herpes and bacterial vaginosis, are quite common in pregnant women in the United States. Other STDs, notably HIV and syphilis, are much less common in pregnant women. The table below shows the estimated number of pregnant women in the United States who are infected with specific STDs each year.

STDs	Estimated Number of Pregnant Women
Bacterial vaginosis	1,080,000
Herpes simplex virus 2	880,000
Chlamydia	100,000
Trichomoniasis	124,000
Gonorrhea	13,200
Hepatitis B	16,000
HIV	6,400
Syphilis	<1,000

How do STDs affect a pregnant woman and her baby?

STDs can have many of the same consequences for pregnant women as women who are not pregnant. STDs can cause cervical and other cancers, chronic hepatitis, pelvic inflammatory disease, infertility, and other complications. Many STDs in women are silent; that is, without signs or symptoms.

STDs can be passed from a pregnant woman to the baby before, during, or after the baby's birth. Some STDs (like syphilis) cross the placenta and infect the baby while it is in the uterus (womb). Other STDs (like gonorrhea, chlamydia, hepatitis B, and genital herpes) can be transmitted from the mother to the baby during delivery as the baby passes through the birth canal. HIV can cross the placenta during pregnancy, infect the baby during the birth process, and unlike most other STDs, can infect the baby through breastfeeding.

A pregnant woman with an STD may also have early onset of labor, premature rupture of the membranes surrounding the baby in the uterus, and uterine infection after delivery. The harmful effects of STDs in babies may include stillbirth (a baby that is born dead), low birth weight (less than five pounds), conjunctivitis (eye infection), pneumonia, neonatal sepsis (infection in the baby's blood stream), neurologic damage, blindness, deafness, acute hepatitis, meningitis, chronic liver disease, and cirrhosis. Most of these problems can be prevented if the mother receives routine prenatal care, which includes screening tests for STDs starting early in pregnancy and repeated close to delivery, if necessary. Other problems can be treated if the infection is found at birth.

Should pregnant women be tested for STDs?

Yes, STDs affect women of every socioeconomic and educational level, age, race, ethnicity, and religion. The CDC 2006 Guidelines for Treatment of Sexually Transmitted Diseases recommend that pregnant women be screened on their first prenatal visit for STDs which may include:

- Chlamydia
- Gonorrhea
- Hepatitis B
- HIV
- Syphilis

In addition, some experts recommend that women who have had a premature delivery in the past be screened and treated for bacterial vaginosis at the first prenatal visit.

Pregnant women should ask their doctors about getting tested for these STDs, since some doctors do not routinely perform these tests. New and increasingly accurate tests continue to become available. Even if a woman has been tested in the past, she should be tested again when she becomes pregnant.

Can STDs be treated during pregnancy?

Chlamydia, gonorrhea, syphilis, trichomoniasis, and bacterial vaginosis (BV) can be treated and cured with antibiotics during pregnancy. There is no cure for viral STDs, such as genital herpes and HIV, but antiviral medication may be appropriate for pregnant women with herpes and definitely is for those with HIV. For women who have active genital herpes lesions at the time of delivery, a cesarean delivery (C-section) may be performed to protect the newborn against infection. C-section is also an option for some HIV-infected women. Women who test negative for hepatitis B, may receive the hepatitis B vaccine during pregnancy.

How can pregnant women protect themselves against infection?

The surest way to avoid transmission of sexually transmitted diseases 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.

Latex condoms, when used consistently and correctly, are highly effective in preventing transmission of HIV, the virus that causes AIDS. Latex condoms, when used consistently and correctly, can reduce the risk of transmission of gonorrhea, chlamydia, and trichomoniasis. Correct and consistent use of latex condoms can reduce the risk of genital herpes, syphilis, and chancroid only when the infected area or site of potential exposure is protected by the condom. Correct and consistent use of latex condoms may reduce the risk for genital human papillomavirus (HPV) and associated diseases (e.g. warts and cervical cancer).

FOR MORE INFORMATION:

Division of STD Prevention (DSTDP)

Centers for Disease Control and Prevention

http://www.cdc.gov/std/

CDC-INFO Contact Center

1-800-CDC-INFO (1-800-232-4636)

Email: cdcinfo@cdc.gov

American Social Health Association (ASHA)

1-800-783-9877

www.ashastd.org

CONTENT UPDATED: DECEMBER, 2007

CDC Fact Sheet

Syphilis

What is syphilis?

Syphilis is a sexually transmitted disease (STD) 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.

How common is syphilis?

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 20 counties and 2 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 cases in 2006.

Between 2005 and 2006, the number of reported P&S syphilis cases increased 11.8 percent. P&S rates have increased in males each year between 2000 and 2006 from 2.6 to 5.7 and among females between 2004 and 2006. In 2006, 64% of the reported P&S syphilis cases were among men who have sex with men (MSM).

How do people get syphilis?

Syphilis is passed from person to person through direct contact with a syphilis sore. Sores occur mainly on the 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.

What are the signs and symptoms?

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.

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 hands and the bottoms 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 are so faint that they are not noticed. In addition to rashes, symptoms of secondary syphilis may include fever, swollen lymph glands, sore throat, patchy hair loss, headaches, weight loss, muscle aches, and fatigue. The signs and 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 (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 stagesof syphilis can develop in about 15% 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.

How does syphilis affect a pregnant woman and her baby?

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 (a baby born dead) or of 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.

How is syphilis diagnosed?

Some health care providers can diagnose syphilis by examining material from a chancre (infectious sore) using a special microscope called a dark-field microscope. If syphilis bacteria are present in the sore, they will show up when observed through the microscope.

A blood test is another way to determine whether someone has syphilis. Shortly after infection occurs, the body produces syphilis antibodies that can be detected by an accurate, safe, and inexpensive blood test. A low level of antibodies will likely stay in the blood for months or years even after the disease has been successfully treated. Because untreated syphilis in a pregnant woman can infect and possibly kill her developing baby, every pregnant woman should have a blood test for syphilis.

How are syphilis and HIV linked?

Genital sores (chancres) caused 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 or 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 of 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.

What is the treatment for syphilis?

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 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.

Will syphilis recur?

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 to determine the need to be re-tested for syphilis after being treated.

How can syphilis be prevented?

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 and chancroid, only when the infected area or site of potential exposure is protected.

Condoms lubricated with spermicides (especially Nonoxynol-9 or N-9) are no more effective than other lubricated condoms in protecting against the transmission of STDs. Use of condoms lubricated with N-9 is not recommended for STD/HIV prevention. Transmission of an STD, including syphilis cannot be prevented by washing the genitals, urinating, and/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.

FOR MORE INFORMATION:

Division of STD Prevention (DSTDP)
Centers for Disease Control and Prevention
http://www.cdc.gov/std/

CDC-INFO Contact Center
1-800-CDC-INFO (1-800-232-4636)
Email: cdcinfo@cdc.gov

American Social Health Association (ASHA)
1-800-783-9877
www.ashastd.org

CDC Fact Sheet

Trichomoniasis

What is trichomoniasis?

Trichomoniasis is a common sexually transmitted disease (STD) that affects both women and men, although symptoms are more common in women.

How common is trichomoniasis?

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.

How do people get trichomoniasis?

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 (urine canal) is the most common site of infection in men.

The parasite is sexually transmitted through penis-to-vagina intercourse or vulva-to-vulva (the genital area outside the vagina) contact with an infected partner. Women can acquire the disease from infected men or women, but men usually contract it only from infected women.

What are the signs and symptoms?

Most men with trichomoniasis do not have signs or symptoms; however, some men may temporarily have an irritation inside the penis, mild discharge, or slight burning after urination or ejaculation.

Some 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.

What are the complications of trichomoniasis?

The genital inflammation caused by trichomoniasis can increase a woman's susceptibility to HIV infection if she is exposed to the virus. Having trichomoniasis may increase the chance that an HIV-infected woman passes HIV to her sex partner(s).

How does trichmoniasis affect a pregnant woman and her baby?

Pregnant women with trichomoniasis may have babies who are born early or with low birth weight (low birth weight is less than 5.5 pounds).

How is trichomoniasis diagnosed?

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 (sores) on the vaginal wall or cervix.

What is the treatment for trichmoniasis?

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.

How can trichmoniasis be prevented?

The surest way to avoid transmission of sexually transmitted diseases 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.

Latex male 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 a signal to stop having sex and to consult a health care provider immediately. A person diagnosed with trichomoniasis (or any other STD) should receive treatment and should notify all recent sex partners so that they 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.

FOR MORE INFORMATION:

Division of STD Prevention (DSTDP)
Centers for Disease Control and Prevention
http://www.cdc.gov/std/

CDC-INFO Contact Center
1-800-CDC-INFO (1-800-232-4636)
Email: cdcinfo@cdc.gov

American Social Health Association (ASHA)
1-800-783-9877
www.ashastd.org