

# HIV EXAMINER

A Monthly Newsletter of Writers Against Aids and Tobacco Smoking

March Edition

## Sexually Transmitted Infections

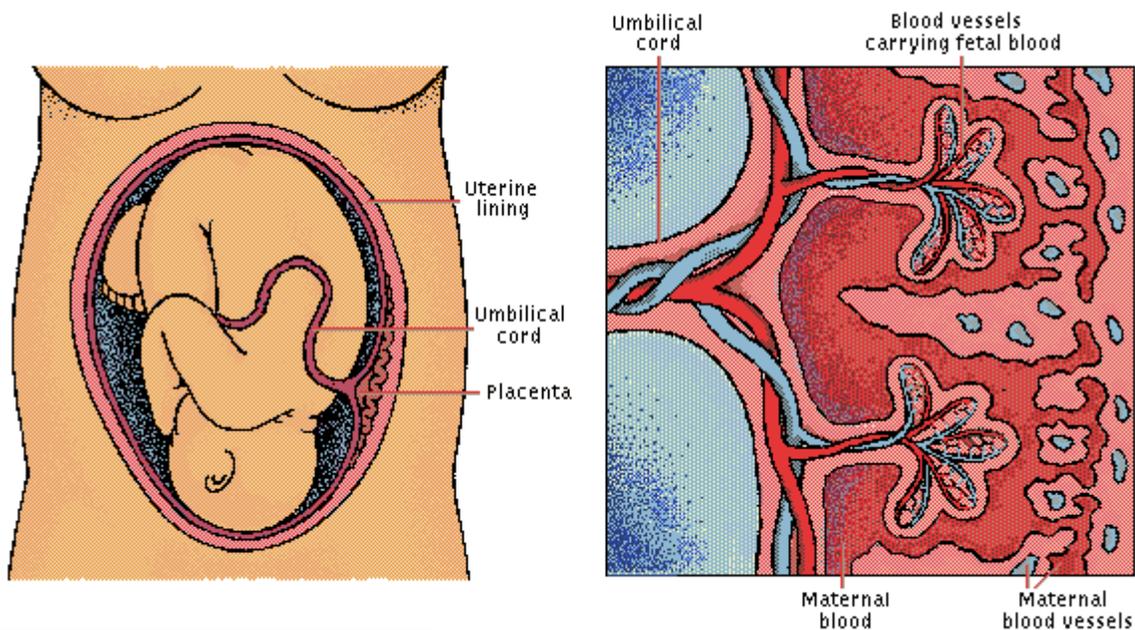
### I INTRODUCTION

Sexually Transmitted Infections (STIs), formerly known as venereal diseases, more than 25 infections passed from one person to another primarily during sexual contact. STIs are among the most common infections known—more than 15 million people in the United States become infected with one or more STIs every year. The United States has the highest STI rate in the industrialized world—roughly half of all Americans become infected with an STI before the age of 35. Despite the prevalence of STIs, studies show that many people are unaware of their risks for contracting an STI or the serious, and sometimes deadly, health consequences that may result from an untreated infection.

Some STIs, such as gonorrhea or chlamydia, may cause no symptoms. People who do not know they are infected risk infecting their sexual partners and, in some cases, their unborn children. If left untreated, these diseases may cause debilitating pain or may destroy a woman's ability to have children. Some STIs can be cured with a single dose of antibiotics, but many, such as acquired immunodeficiency syndrome (AIDS), are incurable. People with these diseases remain infectious to others for their entire lives.

Those most at risk for contracting STIs are people who have unprotected sex—that is, sex without using a latex or polyurethane condom; those who have multiple partners; and those whose sex partners include intravenous drug users who share needles. Studies show that Americans between the ages of 16 and 24 are at greater risk for acquiring STIs than are older adults because younger people are more likely to have multiple sexual partners rather than a single, long-term relationship. Additionally, young people may be more likely to have unprotected sex and they may find it difficult to tell their sexual partners they are infected with an STI. Young people may also be embarrassed or unable to seek treatment for STIs. This means that they are not only more likely to pass the disease to other young people, they also have a greater risk of suffering the long-term consequences of untreated STIs.

## II HOW STIS ARE TRANSMITTED



## **Placenta**

The placenta is responsible for respiration and excretion in the growing fetus. Fetal blood flows through the blood vessels of the umbilical cord to the placenta, where fingerlike capillary nets are surrounded by pools of the mother's blood. Here carbon dioxide and other metabolic wastes diffuse from fetus to mother, and oxygen and nutrients pass from mother to fetus. Some STDs can be passed from an infected mother to her unborn child when disease-causing organisms cross the placenta.

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STIs are transmitted by infectious agents—microscopic bacteria, viruses, parasites, fungi, and single-celled organisms called protozoa—that thrive in warm, moist environments in the body, such as the genital area, mouth, and throat. Most STIs spread during sexual intercourse (vaginal or anal), but other forms of sexual contact, such as oral sex, can also spread disease.

Some STIs are transmitted in ways other than by sexual contact. Certain viral STIs, such as AIDS and some types of hepatitis, may be transmitted by contact with infected blood. For instance, viral STIs may pass between people who share infected needles, and a person can become infected from a transfusion of infected blood. Some STIs may pass from an infected mother to her child. Infection may occur before birth, when the infectious agent crosses the placenta (organ in a pregnant woman's uterus that links the blood supplies of mother and baby) and enters the baby's bloodstream. Infection also may occur during childbirth, as the baby passes through the birth canal, or after birth,

when the baby consumes infected breast milk. STIs cannot be transmitted through shaking hands or other casual contact, or through contact with inanimate objects such as clothing or toilet seats.

### **III COMMON STIS**

The most common STIs in the United States include chlamydia, gonorrhea, syphilis, herpes, AIDS, hepatitis, genital warts, and trichomoniasis.

#### **A Chlamydia**

According to the Centers for Disease Control and Prevention (CDC), chlamydia is the most frequently reported infectious disease in the United States. Caused by the *Chlamydia trachomatis* bacterium, the disease does not produce noticeable symptoms in 75 percent of women and 50 percent of men, so an infection often goes undiagnosed. Experts estimate that 3 million people become infected with chlamydia each year, but according to the CDC, only about 660,000 of these infections are reported each year.

People who do not know they are infected with chlamydia may not seek medical care and they may continue to have sex, unknowingly spreading the disease. When symptoms do develop, men may experience painful or burning urination or a discharge from the penis. Women may experience bleeding between periods, burning urination, vaginal discharge, or mild lower abdominal pain. If left untreated in women, chlamydia can cause severe health problems. Chlamydia damages female reproductive tissue, causing pelvic

inflammatory disease (PID). PID can cause chronic, debilitating pelvic pain, infertility, or fatal pregnancy complications. Babies born to mothers infected with chlamydia are at risk of developing eye and lung infections.

Diagnosing chlamydia infections requires a physical examination in which a health-care provider performs a pelvic examination to collect a small amount of vaginal or penile fluid, which is then tested for the presence of *Chlamydia trachomatis*. New diagnostic tests that use urine samples to identify the presence of the chlamydia bacteria have become available, providing a noninvasive way to diagnose people who show no symptoms for the disease. Chlamydia is treatable with antibiotics.

## **B Gonorrhea**

Gonorrhea, caused by the bacterium *Neisseria gonorrhoeae*, infects the membranes lining certain genital organs. Although roughly 360,000 gonorrhea infections are reported each year in the United States, experts estimate that closer to 650,000 people are infected annually. Like chlamydia, gonorrhea is often symptomless. When present, symptoms may be similar to those of chlamydia and include burning urination and penile or vaginal discharge. Untreated gonorrhea can cause PID in women. Babies born to mothers with gonorrhea are at risk of infection during childbirth; such infections can cause eye disease in the newborn. Physicians diagnose gonorrhea by testing penile or vaginal discharge or urine specimens for the presence of *Neisseria gonorrhoeae*. Gonorrhea is treatable with

several antibiotics, although the infection has become resistant to treatment with some drugs in the past several decades.

### **C Syphilis**

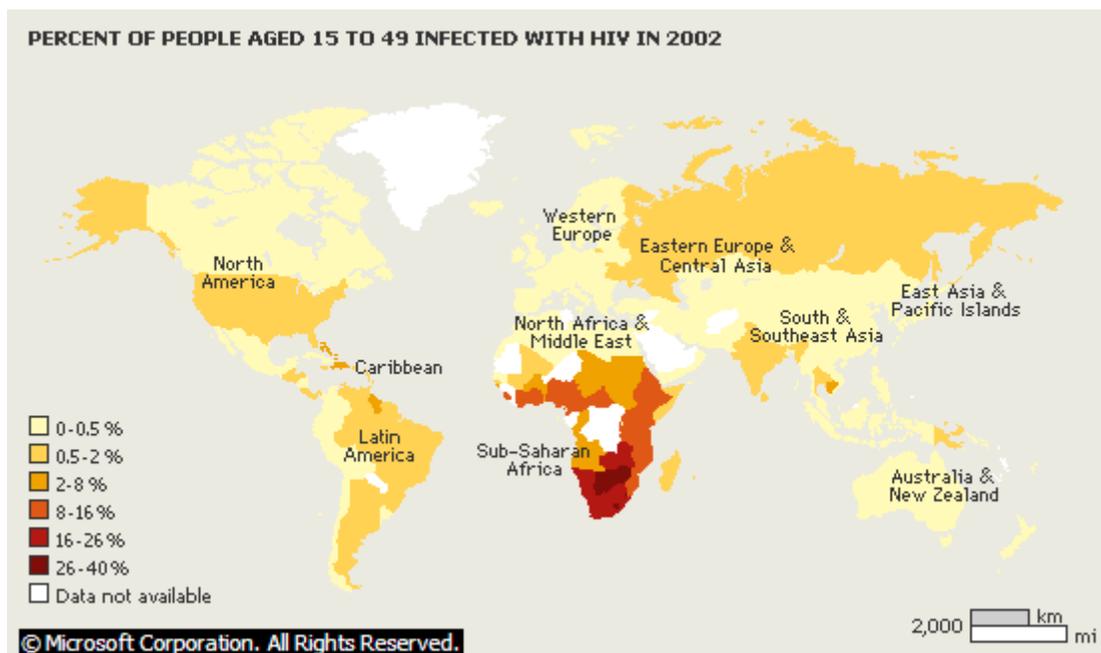
Syphilis, a potentially life-threatening STI, is caused by the bacterium *Treponema pallidum*. According to the CDC, there are an estimated 36,000 new cases of syphilis in the United States each year. In the early stage of syphilis, a genital sore, called a chancre, develops shortly after infection and eventually disappears on its own. If the disease is not treated, the infection can progress over years, affecting the vertebrae, brain, and heart, and resulting in such varied disorders as lack of coordination, meningitis, and stroke. Syphilis during pregnancy can be devastating to the fetus, causing deformity and death, and most pregnant women in the United States receive screening for the disease in the first weeks of pregnancy so that the disease can be treated before the fetus is harmed. Syphilis is easily treated with penicillin, and the number of cases in the United States has dropped considerably since 1982. By the late 1990s, however, many urban communities experienced a resurgence in syphilis cases among men who have sex with men.

### **D Genital Herpes**

Genital herpes is caused by infection with the herpes simplex virus (HSV). Most cases of genital herpes are due to HSV type 2. Some cases, however, result from genital infections with HSV type 1, a common cause of cold sores. Genital herpes causes recurrent

outbreaks of painful sores on the genitals, although the disease often remains dormant with no symptoms for long periods. In the United States, one in five individuals over the age of 12 is infected with HSV type 2, and the vast majority of those infected—about 90 percent—do not know they have the disease. Blood tests can detect HSV infection, even if a person has no symptoms. The symptoms of HSV can be treated with antiviral drugs, such as acyclovir, but HSV cannot be eradicated from the body—it is incurable.

## E AIDS



### A Global Epidemic

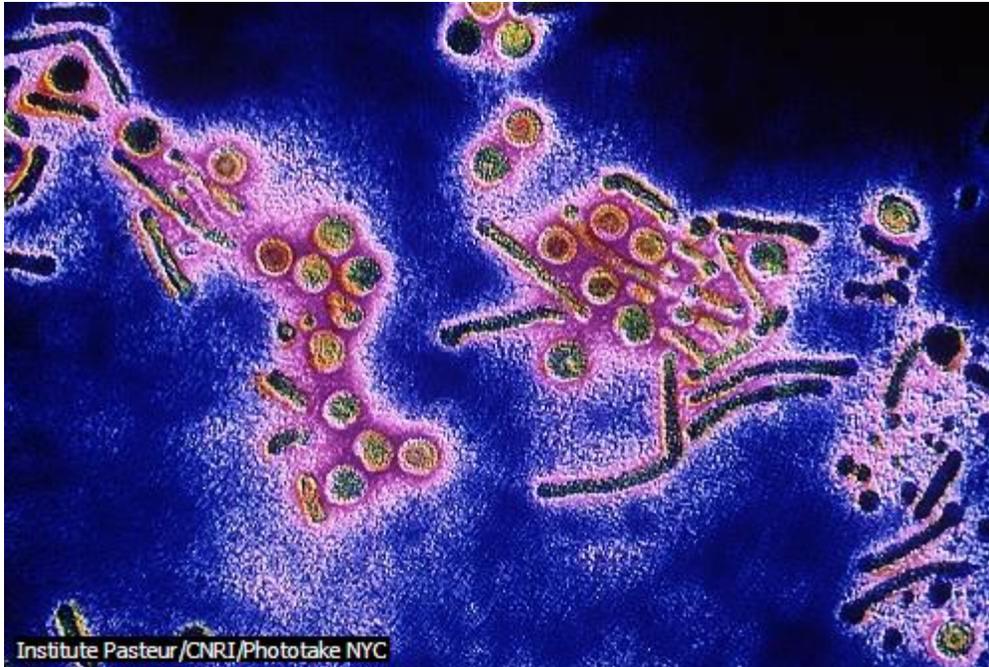
More than 42 million people around the world are currently infected with human immunodeficiency virus (HIV), the virus that causes acquired immunodeficiency syndrome (AIDS). New HIV infections have leveled off or even declined in most

developed countries, but the virus is spreading rapidly through much of the developing world. In some areas of sub-Saharan Africa, one in four adults is carrying the virus.

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AIDS, the result of infection with the human immunodeficiency virus (HIV), is an incurable and deadly STI. AIDS attacks the body's immune system, leaving victims unable to fight off even the mildest infections. While HIV can be transmitted by other means, sexual contact is the most common means of transmission. Women who are infected with HIV can pass the virus to their infants during pregnancy, childbirth or, less frequently, in breast milk. Treatment options for people infected with HIV include protease inhibitors, which can markedly increase survival. In spite of widespread educational and prevention programs, the CDC estimates that there are 40,000 new cases of HIV each year in the United States and that 800,000 to 900,000 Americans overall have HIV infection.

## **F Hepatitis B**



## Hepatitis B Virus

The hepatitis B virus (HBV) is passed from person to person through contaminated body fluids. Although transmission can occur in many ways, the most important mode of transmission in the United States is sexual contact.

Institute Pasteur/CNRI/Phototake NYC

One hundred times more contagious than HIV, hepatitis B passes from person to person through unprotected sexual intercourse with an infected person, or through the sharing of infected needles or other sharp instruments that break the skin. Hepatitis B can also spread during childbirth: Between 90 and 95 percent of all babies born to infected mothers get the disease during birth. The CDC estimates that 120,000 new hepatitis B infections occur each year. Hepatitis B attacks liver cells, sometimes leading to cirrhosis and cancer of the liver. In most cases hepatitis B is incurable, but arduous chemotherapy

can eliminate the virus in some patients. There is a safe, effective vaccination for hepatitis B, and most states are developing or already have initiated public school immunization programs.

## **G Genital Warts**

Genital warts grow on the penis and in and around the entrance to the vagina and anus. They are caused by a family of viruses known as human papillomavirus (HPV) that are transmitted during sexual intercourse. The CDC estimates that there are 5.5 million new cases of genital warts in the United States each year. Genital warts are treatable with topical medications and can be removed with minor surgical procedures. Certain types of HPV that cause genital infections can also cause cervical cancer. Regular pap smear screenings can detect abnormalities at an early stage, when they can more easily be treated to prevent cancer developing. The first vaccine against HPV strains that can cause genital warts and cervical cancer was approved by the U.S. Food and Drug Administration and by Health Canada in 2006. Sold under the brand name Gardasil, the new vaccine completely prevented infections in women in nearly all clinical trials.

## **H Trichomoniasis**

Trichomoniasis, caused by infection with the protozoan *Trichomonas vaginalis*, causes burning, itching, and discomfort in the vagina in women and the urethra in men.

Trichomoniasis is easily treated with a single dose of antibiotics. The CDC estimates that 5 million Americans become infected with trichomoniasis each year.

#### **IV PREVENTION AND CONTROL**

Unlike many serious diseases, simple measures can prevent STIs. The most effective prevention method is abstinence—that is, refraining from sex completely. No sexual contact means no risk of developing an STI. Practicing monogamy, in which two partners do not have sexual relations with anyone but each other, also greatly reduces the risk of spreading and contracting STIs.

Latex condoms are an effective, although not perfect, form of protection from STIs. These plastic sheaths, worn over the penis or inserted into the vagina, act as a physical barrier to organisms that cause STIs. However, condoms do not cover all of the genital surfaces that may come into contact during sex, and the possibility of transmission of some STIs, especially genital herpes and warts, still exists.

Early diagnosis and thorough treatment prevent the more serious consequences of STI infection, while halting the spread of STIs from person to person. This is most critical in STIs that do not cause symptoms, because those infected often do not know they risk infecting their sexual partners. The complete dosage of drug treatment must be completed, even if early doses of drugs appear to alleviate symptoms entirely. The infection may still persist in the absence of symptoms, leading infected individuals to unknowingly spread the disease.

Public clinics screen patients at risk for STIs in order to diagnose and treat diseases in the early stages. Clinics track the incidence of STIs in particular areas and contact the sexual partners of infected individuals. By identifying and treating these potential carriers, clinics are able to break the chain of STI infections. Several organizations, such as the CDC and the World Health Organization, monitor and research the prevalence and transmission of STIs on an international level in an effort to prevent local outbreaks from reaching global, epidemic proportions.

## **V TRENDS IN STIS**

At any time in history, the prevalence and significance of different STIs mirror changes in science and society. For example, in many countries of the world, the incidence of STIs increased during and immediately after World War II (1939-1945), when soldiers spending extended periods of time away from home engaged in unprotected sexual relations with different partners, many of whom carried STIs. When the antibiotic penicillin became widely available in the following years, the same countries experienced dramatic reductions in STI incidence. Beginning in the 1950s, however, the incidence of gonorrhea began to rise as American sexual mores changed. Strains of the disease developed resistance to penicillin, and by the 1970s and 1980s the disease reached epidemic proportions in young adult populations. Introduction of HIV into the human population led to an international AIDS crisis that began in the 1980s and continues to this day.

Cases of STIs are increasing, even though the use of condoms has increased since the onset of the AIDS epidemic. Public health officials believe that many factors are probably responsible for the increase in STIs, among them trends in sexual behavior. In the last several decades, the age at which people have sex for the first time has shifted downward, while the average number of partners a person has sex with during his or her lifetime has increased. Together, these trends increase the risk of exposure to an STI.

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