

Office of Research on Women's Health

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Sexually Transmitted Infections

Understanding These Infections and Planning for Future Research and Prevention
MARCH 2006 NIH Scientific Workshop Focuses the Discussion

What Are STIs?

Sexually transmitted infections (STIs), commonly called sexually transmitted diseases (STDs), are often undetectable. They can be transmitted by those affected to unsuspecting partners during intimate physical contact, including sex, through oral, anal, or vaginal routes. More than 20 different kinds of STIs have been identified. These can be grouped by origin:

- **STIs caused by bacteria** can be treated and often cured with antibiotics. Among these are chlamydia, gonorrhea, trichomoniasis, and syphilis.
- **STIs caused by viruses** can be controlled, but not cured. Viral STIs include HIV/AIDS, genital herpes, genital warts, human papilloma virus (HPV), hepatitis B virus, and cytomegalovirus.

Why Are STIs Important?

STIs present a major public health problem, both nationally and globally. Not only do they have devastating effects on the health of women and their children, but having an STI greatly increases the risk for developing HIV and AIDS. The Centers for Disease Control and Prevention (CDC) estimates that 19 million new infections are reported each year in the U.S. with direct medical costs estimated at \$14.1 billion. The numbers reflect only those cases that have been diagnosed and reported. Many cases of human papilloma virus and genital herpes, highly prevalent viruses, are not reported at all presenting an even greater risk for transmission. The U.S. must also be concerned with the global impact and spread of STIs since the rates in Africa are slightly more than double and those in Asia triple our reported figures. Young people, ages 15 to 24, account for almost half of these new STIs.

Why Are STIs a Women's Issue?

Women are more susceptible to and affected by STIs and their consequences. Young adolescent girls are most vulnerable to contracting STIs because of the normal hormonal changes that occur in puberty, the limited exposure of their immune systems, and their increase in cervical abnormalities. Despite these biologic risks, adolescents are not usually attuned to these diseases and are often more concerned about pregnancy than they are of contracting an STI. If symptoms develop, they are often minor or nonspecific, particularly in the early stages of an STI. Symptoms may also be attributed to other diseases that are not associated with sexual contact (e.g., yeast and urinary tract infections). As a result, STIs in women sometimes are not diagnosed until after serious problems have developed. For example, women with gonorrhea or chlamydia can develop pelvic inflammatory disease (PID), which can lead to ectopic pregnancy and infertility. STIs in pregnant women may result in perinatal infection with adverse effects to the fetus or newborn, including death. STIs are often the source of lifelong chronic pelvic pain conditions.

Most importantly, having an STI puts women in this sexually active group at a 6-7 fold risk for contracting HIV and a 5 fold risk for transmitting the virus to an unsuspecting partner. In the U.S., HIV/AIDS is the sixth leading cause of death among all women aged 25 to 34 and the fourth leading cause of death among all women aged 35 to 44.

How Can Women Prevent STIs?

The only way for women to ensure that they will not contract an STI is to avoid all types of intimate sexual contact. However, if women are sexually active, there are several ways they can

reduce their risk of infection. These include using a condom every time they have vaginal, oral, or anal intercourse, knowing their partner and his or her STI status and health, and having regular medical checkups, especially if they have more than one sexual partner.

Both sexes in the adolescent group most likely to develop new STIs have not yet achieved the full cognitive maturity necessary for exercising good judgment in the context of a wide array of high risk situations, making it unlikely that they practice these safe behaviors.

What Are Barriers To Healthy Behaviors?

In addition to the biologic and psychological challenges presented, gender plays an important role in the transmission and prevention of STIs. Gender is different from one's sexual biology. Gender is defined by socially constructed roles that are assigned to men and women in any given society and that may vary, but in some respects, are remarkably similar among different cultures. Many social factors impact gender roles in the U.S. and can influence how or if women take steps to prevent and/or seek treatment for STIs. Such social factors include:

- **Economic forces**—Women generally earn less than men. This can affect women's access to health care and cause some women to make sexual decisions based on economic reasons rather than health reasons.
- **Educational differences**—Differences in educational attainment can also create imbalances of power and economic status that affect women's sexual health decisions.
- **Partner violence**—Many women are victims of assault and control. They may be unwilling or unable to control their sexual safety. They also may experience the social isolation and depression that go along with partner violence, both of which are risk factors for STIs.
- **Fear of abandonment**—Many women fear being left by men, which can affect decisions about their sexual health and safety.

Health professionals and educators must attend to the overriding importance of these factors and deliver culturally relevant, targeted messages to effectively control STIs.

What Is NIH Doing About STIs?

The information presented here was compiled from a 2006 NIH Office of Research on Women's Health seminar to increase awareness and scientific understanding of how STIs affect health. Distinguished presenters who shared their expertise were Victoria A. Cargill, M.D., MSCE; Roberta Black, Ph.D.; Craig R. Cohen, M.D., M.P.H.; and Kathy Woodward, M.D. The NIH also sponsors numerous efforts to combat STIs which include the following.

Topical microbicide research and development—Topical microbicides are creams, gels, sponges, and other woman-controlled agents that, when used prior to sexual intercourse, may help protect women from HIV and other STIs. Although microbicides are not yet available for human use, the Trans-NIH Microbicide Working Group has defined the requirements necessary for a safe and effective agent that should both protect against acquisition of and prevent transmission of the disease. Several candidates are now being studied in clinical trials to assess their safety and effectiveness.

Human papilloma virus (HPV)—Genital HPV is the most common STI in the U.S. At least 50 percent of sexually active men and women get genital HPV at some time in their lives. Although most HPV infections occur and appear to resolve without any symptoms or treatment, some types of HPV can cause cervical cancer and are the leading causes of cervical cancer in women. Recently, the CDC's Advisory Committee on Immunization Practices recommended that a newly licensed vaccine designed to protect against HPV routinely be given to girls when they are 11–12 years old. National Cancer Institute (NCI) scientists and their colleagues, with support from the ORWH, worked for two decades to discover the underlying causes of cervical cancer and examined ways to boost the body's immune response to prevent the cancer-causing infection. Their work led to the development of the technology on which the HPV vaccine is based. The NCI is also conducting effectiveness trials with a vaccine of their own design.

NIH Resources for Health Consumers

More detailed information about STIs may be accessed at: <http://cancer.gov/>; <http://www.niaid.gov/>; <http://www.nichd.nih.gov/>; <http://www.oar.nih.gov/>; <http://niaaa.gov/>; <http://nida.gov/>; and <http://www.nimh.gov/>.

To view the videocast of this seminar, visit the NIH Office of Research on Women's Health Web site at <http://orwh.od.nih.gov/news/2006.html> and select from the list or contact us by telephone at 301-402-1770. To hear an interview with Alan Hildesheim, M.D., the NCI researcher who worked on the development of the HPV vaccine, go to <http://orwh.od.nih.gov/> and select Podcast 1.

