

Incidence, Prevalence, and Cost of Sexually Transmitted Infections in the United States

CDC's estimates of sexually transmitted infections:

Annual new infections

(Incidence)

20 million

- United States, 2008

Total infections

(Prevalence)

110 million

- United States, 2008

Total medical costs

\$16 billion

- United States (in 2010 dollars)

In February 2013, CDC published two analyses^{1,2} that provide an in-depth look at the severe human and economic burden of sexually transmitted infections (STIs) in the United States.

CDC's new estimates show that there are about 20 million new infections in the United States each year, costing the American healthcare system nearly \$16 billion in direct medical costs alone.

America's youth shoulder a substantial burden of these infections. CDC estimates that half of all new STIs in the country occur among young men and women. In addition, CDC published an overall estimate of the number of prevalent STIs in the nation. Prevalence is the total number of new and existing infections at a given time. CDC's new data suggest that there are more than 110 million total STIs among men and women across the nation.

CDC's analyses included eight common STIs: chlamydia, gonorrhea, hepatitis B virus (HBV), herpes simplex virus type 2 (HSV-2), human immunodeficiency virus (HIV), human papillomavirus (HPV), syphilis, and trichomoniasis.

How CDC developed its new estimates: CDC's new estimates were developed using the best available data. The estimates are based on national surveys, nationally notifiable disease case reports, and data from special projects. The primary data source used to estimate the number of most prevalent infections was the National Health and Nutrition Examination Survey (NHANES), a nationally representative sample of the civilian, non-institutionalized population in the United States that includes testing for STIs. CDC used conservative assumptions in generating its estimates, so the true numbers of STIs in the United States may be even higher than estimated.

When calculating the number of prevalent and incident infections, only those infections that were sexually transmitted were counted. In general, CDC estimated the total number of infections in the calendar year, rather than the number of individuals with infection, since one person can have more than one STI at a given time (e.g., HPV and chlamydia) or more than one episode of a single STI (e.g., repeat chlamydia infection). Because 20 percent of people with HPV are infected with more than one type, HPV infections were calculated per person so that individuals infected with multiple HPV types would not be double counted. If each HPV infection was considered, the totals would show an even higher burden of infection.

CDC's cost estimates reflect the lifetime direct medical cost per case of eight common STIs in the United States and do not include either indirect costs (e.g., loss of productivity) or intangible costs (e.g., pain and suffering) associated with many STIs. Including such costs would have resulted in a substantially higher estimated economic burden.

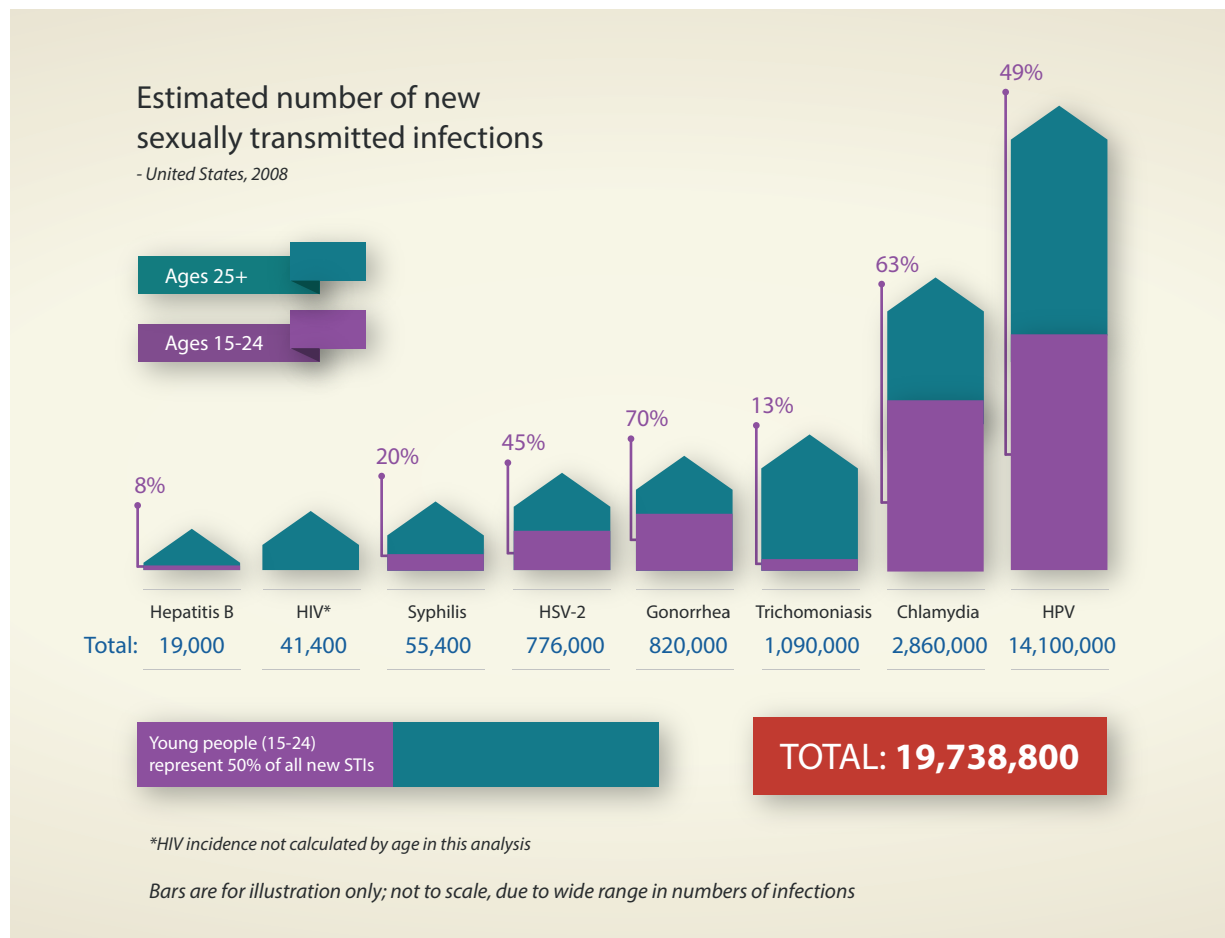
¹ Satterwhite CL, et al. Sexually transmitted infections among U.S. women and men: Prevalence and incidence estimates, 2008. *Sex Transm Dis* 2013; 40(3): pp. 187-193.

² Owusu-Edusei K, et al. The estimated direct medical cost of selected sexually transmitted infections in the United States, 2008. *Sex Transm Dis* 2013; 40(3): pp. 197-201.



Nearly 20 Million New Infections Occur Each Year – Half among the Nation’s Youth

CDC estimates that there are more than 19.7 million new STIs in the United States each year. While most of these STIs will not cause harm, some have the potential to cause serious health problems, especially if not diagnosed and treated early. Young people (ages 15-24) are particularly affected, accounting for half (50 percent) of all new STIs, although they represent just 25 percent of the sexually experienced population.



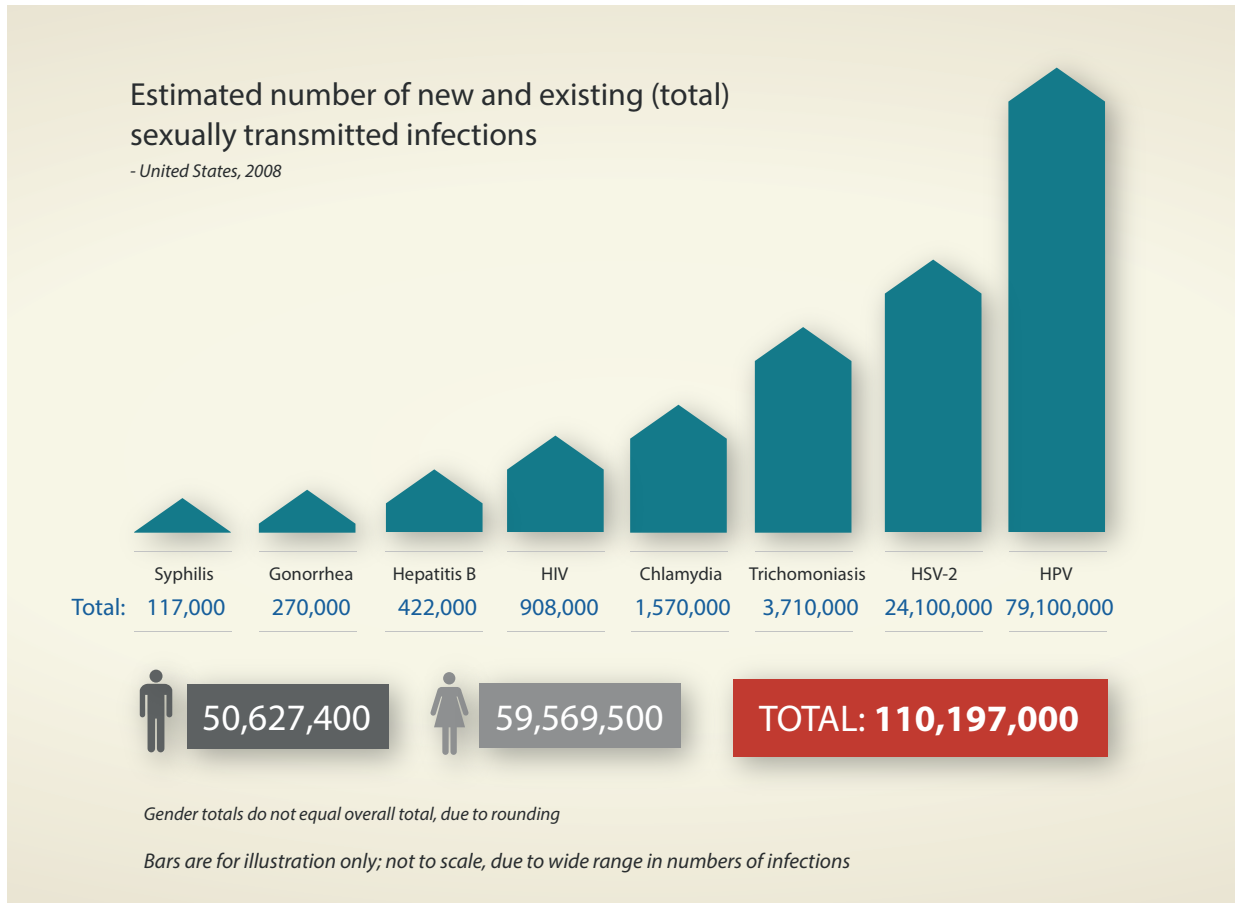
While the consequences of untreated STIs are often worse for young women, the new analysis reveals that the annual number of new infections is roughly equal among young women and young men (49 percent of incident STIs occurs among young men, vs. 51 percent among young women).

Four of the STIs included in the analysis are easily treated and cured if diagnosed early: chlamydia, gonorrhea, syphilis, and trichomoniasis. However, too many of these infections go undetected because they often have no symptoms. But even STIs that don't have symptoms can have serious health consequences. Undiagnosed and untreated chlamydia or gonorrhea, for example, can put a woman at increased risk of chronic pelvic pain and life-threatening ectopic pregnancy, and can also increase a woman's chance of infertility.

CDC estimates that HPV accounts for the majority of newly acquired STIs. While the vast majority (90 percent) of HPV infections will go away on their own within two years and cause no harm, some of these infections will take hold and potentially lead to serious disease, including cervical cancer (see HPV box, pg. 3).

New Estimates Reveal More than 110 Million STIs in the United States

CDC's analysis suggests that there are more than 110 million STIs overall among men and women nationwide. This estimate includes both new and existing infections. Some prevalent infections – such as HSV-2 and HIV – are treatable but lifelong infections.



HPV accounts for the majority of prevalent STIs in the United States. While there is no treatment for the virus itself, there are treatments for the serious diseases that HPV can cause, and vaccines are available to prevent some types of HPV infection (see HPV box below).

Human papillomavirus (HPV) – The most common STI: The body's immune system clears most HPV naturally within two years (about 90 percent), though some infections persist. While there is no treatment for the virus itself, there are treatments for the serious diseases that HPV can cause, including genital warts, cervical, and other cancers.

Most sexually active men and women will get HPV at some point in their lives. This means that everyone is at risk for the potential outcomes of HPV and many may benefit from the prevention that the HPV vaccine provides. HPV vaccines are routinely recommended for 11 or 12 year old boys and girls, and protect against some of the most common types of HPV that can lead to disease and cancer, including most cervical cancers. CDC recommends that all teen girls and women through age 26 get vaccinated, as well as all teen boys and men through age 21 (and through age 26 for gay, bisexual, and other men who have sex with men). HPV vaccines are most effective if they are provided before an individual ever has sex.

HSV-2, HBV, and HIV are lifelong infections that together account for nearly one-quarter of all prevalent infections. These infections have potentially severe health consequences. For example, HSV-2 can lead to painful chronic infection, miscarriage or premature birth, and fatal infection in newborns. HBV can lead to cirrhosis, a life-threatening liver disease. And HIV damages a person's immune system over time, increasing an infected person's susceptibility to a number of diseases. Additionally, nearly 18,000 people in the United States die with AIDS each year.

STIs Result in Significant Costs to the U.S. Healthcare System

STIs place a significant economic strain on the U.S. healthcare system. CDC conservatively estimates that the lifetime cost of treating eight of the most common STIs contracted in just one year is \$15.6 billion.

Because some STIs – especially HIV – require lifelong treatment and care, they are by far the costliest. In addition, HPV is particularly costly due to the expense of treating HPV-related cancers. However, the annual cost of curable STIs is also significant (\$742 million). Among these, chlamydia is most common and therefore the most costly.

Fighting STIs: Prevention, Diagnosis, and Prompt Treatment

Because STIs are preventable, significant reductions in new infections are not only possible, they are urgently needed. Prevention can minimize the negative, long-term consequences of STIs and also reduce healthcare costs.

The high incidence and overall prevalence of STIs in the general population suggests that many Americans are at substantial risk of exposure to STIs, underscoring the need for STI prevention.

Abstaining from sex, reducing the number of sexual partners, and consistently and correctly using condoms are all effective STI prevention strategies. Safe, effective vaccines are also available to prevent HBV and some types of HPV that cause disease and cancer. And for all individuals who are sexually active – particularly young people – STI screening and prompt treatment (if infected) are critical to protect a person's health and prevent transmission to others.

CDC's STI Screening Recommendations: If you are sexually active, be sure to talk to your healthcare provider about STI testing and which tests may be right for you.

- All adults and adolescents should be tested at least once for HIV.
- Annual chlamydia screening for all sexually active women age 25 and under, as well as older women with risk factors such as new or multiple sex partners.
- Yearly gonorrhea screening for at-risk sexually active women (e.g., those with new or multiple sex partners, and women who live in communities with a high burden of disease).
- Syphilis, HIV, chlamydia, and hepatitis B screening for all pregnant women, and gonorrhea screening for at-risk pregnant women at the first prenatal visit, to protect the health of mothers and their infants.
- Trichomoniasis screening should be conducted at least annually for all HIV-infected women.
- Screening at least once a year for syphilis, chlamydia, gonorrhea, and HIV for all sexually active gay men, bisexual men, and other men who have sex with men (MSM). MSM who have multiple or anonymous partners should be screened more frequently for STIs (e.g., at 3 to 6 month intervals). In addition, MSM who have sex in conjunction with illicit drug use (particularly methamphetamine use) or whose sex partners participate in these activities should be screened more frequently.

If you are a member of the news media, please visit www.cdc.gov/nchhstp/Newsroom or contact the News Media Line at CDC's National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention: 404-639-8895 or NCHHSTPMediaTeam@cdc.gov.

Other information requests may be directed to the Division of STD Prevention (www.cdc.gov/std) or the CDC-INFO Contact Center: 1-800-CDC-INFO (1-800-232-4636). Inquiries may also be submitted to www.cdc.gov/cdc-info/requestform.html.