



# Sexually Transmitted Diseases in the United States, 2008

## National Surveillance Data for Chlamydia, Gonorrhea, and Syphilis

Sexually transmitted diseases (STDs) remain a major public health challenge in the United States. CDC estimates that there are approximately 19 million new STD infections each year — almost half of them among young people 15 to 24 years of age.<sup>1</sup> The cost of STDs to the U.S. health care system is estimated to be as much as \$15.9 billion annually.<sup>2</sup>

Because many cases of STDs go undiagnosed — and some common viral infections, such as human papillomavirus and genital herpes, are not reported to CDC at all — reported cases of chlamydia, gonorrhea, and syphilis are only a fraction of the true burden of STDs in the United States. This fact sheet summarizes 2008 national data on three reportable STDs — chlamydia, gonorrhea, and syphilis — that are published in CDC's report, *Sexually Transmitted Disease Surveillance, 2008* (available at [www.cdc.gov/std/stats](http://www.cdc.gov/std/stats)).

## Overview of Key Findings

### Chlamydia, Gonorrhea, and Syphilis

In 2008, there were more than 1.5 million total cases of chlamydia and gonorrhea reported to CDC — making them the two most commonly reported infectious diseases in the United States. Adolescent girls and young women are especially hard hit by these two diseases. The largest number of reported cases of both chlamydia and gonorrhea in 2008 was among girls between 15 and 19 years of age, followed closely by young women 20 to 24 years of age. This likely reflects a combination of factors, including biological differences that place females at greater risk for STDs than males, as well as higher STD screening rates among young women.

Syphilis — a disease once on the verge of elimination — began re-emerging as a public health threat in 2001. This is primarily because of a resurgence of the disease among men who have sex (MSM), though cases among women have also been increasing in recent years.

### STDs and Infertility

Untreated STDs can lead to serious long-term health consequences, especially for adolescent girls and young women. CDC estimates that undiagnosed and untreated STDs cause at least 24,000 women in the United States each year to become infertile.<sup>3</sup>

Expanded access to STD prevention services, screening, and treatment is urgently needed to reduce the toll of STDs and protect the health of millions of Americans.

### Racial Disparities

Racial minorities continue to face severe disparities across all three reportable STDs. While racial disparities persist overall, African-Americans, especially young African-American women, are the most heavily affected. Young African-American women face significantly higher rates of chlamydia and gonorrhea than any other group, while the highest rates of syphilis are among African-American men.

### Health Consequences of Untreated Chlamydia and Gonorrhea

Chlamydia and gonorrhea are bacterial infections that can easily be cured with antibiotics. Yet, most infections have no symptoms and often go undiagnosed and untreated, which may lead to severe health consequences, especially for women. Left untreated, 10 to 20 percent of chlamydia and gonorrhea infections in women can result in pelvic inflammatory disease (PID) — a condition that can cause long-term complications such as chronic pelvic pain, ectopic pregnancy, and infertility.<sup>4,5</sup> Untreated STDs are estimated to cause at least 24,000 women to become infertile each year.<sup>3</sup>

Although serious health consequences are less common among men, untreated chlamydia and gonorrhea infections may cause epididymitis, a painful infection in the tissue surrounding the testicles. In addition, untreated chlamydia in men may also cause urethritis, which can cause pain and fever. In rare cases, these conditions can result in sterility.<sup>6</sup>

Studies also suggest that the presence of a chlamydia or gonorrhea infection can increase the risk of HIV transmission.<sup>7</sup>



# Key Findings for Chlamydia, Gonorrhea, and Syphilis

## Chlamydia

### National Overview

Chlamydia remains the most commonly reported infectious disease in the United States. There were more than 1.2 million cases of chlamydia (1,210,523) reported to CDC in 2008, an increase from the 1.1 million cases reported in 2007. The national rate of chlamydia in 2008 was 401.3 cases per 100,000 population, an increase of 9.2 percent from 2007 (367.5).

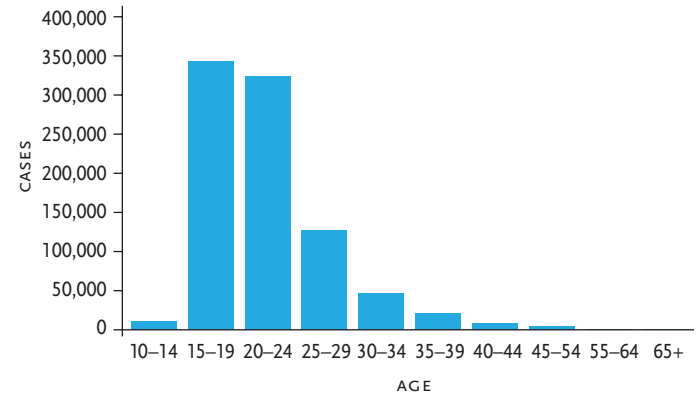
Increases in chlamydia cases and rates are most likely the result of continued expansion of screening, use of more sensitive tests, and more complete national reporting systems, but may also reflect a true increase in disease burden nationally. Still, CDC research indicates that the majority of chlamydia cases go undiagnosed and unreported and that there are an estimated 2.8 million cases in the United States each year.<sup>1</sup>

### Populations Most Affected

Women, especially young and minority women, are hardest hit by chlamydia. In 2008, girls 15 to 19 years of age had the highest numbers of reported cases (342,875) and rates of chlamydia (3,275.8 per 100,000 females), followed closely by young women 20 to 24 years of age (323,696 cases; 3,179.9 cases per 100,000 females). Studies also show that women are most severely affected by the long-term health consequences of untreated chlamydia, including infertility.

In recent years, following the expanded availability of less invasive urine testing for chlamydia, men are getting tested with increased frequency, resulting in an increase of 45 percent in the chlamydia rate among men between 2004 and 2008. While the overall rate of reported chlamydia among men is lower than among women, CDC estimates that the actual overall prevalence of chlamydia is similar among men and women.<sup>8</sup>

Chlamydia—Reported Cases in Females, 2008, by Age



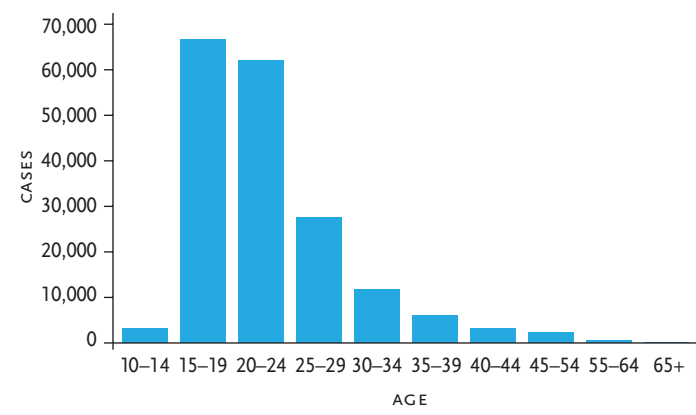
## Gonorrhea

### National Overview

There were 336,742 reported cases of gonorrhea in 2008, a slight decline from 2007 (355,991 cases) — making gonorrhea the second most commonly reported infectious disease in the United States. In 2008, the national gonorrhea rate was 111.6 cases per 100,000 population, a small decrease of 5.4 percent from 2007 (118.0).

Following a 74 percent decline in the rate of reported gonorrhea from 1975 through 1997, overall gonorrhea rates have remained relatively stable for the past decade, though the disease persists at too high a level. Like

Gonorrhea—Reported Cases in Females, 2008, by Age





chlamydia, gonorrhea is substantially under-diagnosed and under-reported, and CDC estimates that there are approximately twice as many new gonorrhea infections each year as are reported.<sup>1</sup>

**Populations Most Affected**

For the eighth consecutive year, gonorrhea rates among women and men were similar. In 2008, the gonorrhea rate among women was 119.4 cases per 100,000 population, compared to 103.0 among men. Gonorrhea rates in 2008 continued to be highest among adolescent girls and young women. In 2008, girls 15 to 19 years of age and young women 20 to 24 years of age had the highest rates of gonorrhea (636.8 and 608.6 cases per 100,000 females, respectively).

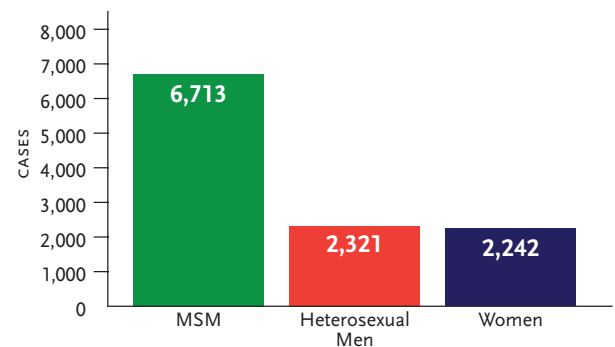
**Syphilis**

**National Overview**

In 2008, there were 13,500 reported cases of primary and secondary (P&S) syphilis — the most infectious stages of the disease — the highest number of cases since 1995 and an increase over 2007 (11,466 cases).

Although on the verge of elimination less than a decade ago, syphilis re-emerged as a public health threat in 2001 and rates have steadily increased since then. In 2008, the national P&S syphilis rate was 4.5 cases per 100,000 population, an 18 percent increase from 2007 (3.8).

**Primary and Secondary Syphilis—Reported Cases, 2008, by Sexual Orientation**



Note: Bars do not add up to total cases since information on gender of sex partners was not available for 20 percent of cases among men.

**Populations Most Affected**

The majority of reported syphilis cases in the United States continues to be among men who have sex with men (MSM). In 2008, data from the District of Columbia and the 44 states that track the gender of sex partners of those infected with syphilis showed that 63 percent of P&S syphilis cases were among MSM, compared to only 4 percent of cases in 2000. This is of particular concern, since MSM are also most heavily affected by HIV, and syphilis infection can facilitate HIV transmission.<sup>7</sup>

While P&S syphilis rates remain substantially lower among women than men, rates among women have increased each year since 2004, following more than a decade of declines. In 2008, the syphilis rate among women increased 36 percent from the previous year (1.1 cases per 100,000 females in 2007 vs. 1.5 in 2008).

Rates of congenital syphilis (transmission from mother to infant) remained stable between 2007 and 2008, following two years of increases. There were 431 reported cases of congenital syphilis in 2008 (10.1 cases per 100,000 live births).

**Health Consequences of Untreated Syphilis**

Syphilis is a genital ulcerative disease that is highly infectious but easily curable in its early (primary and secondary) stages. Left untreated, however, syphilis can lead to serious long-term complications, including brain, cardiovascular, and organ damage, and even death.

Untreated syphilis in pregnant women can also result in congenital syphilis (syphilis among infants), which can cause stillbirth, death soon after birth, and physical deformity and neurological complications in children who survive.<sup>9</sup> Untreated syphilis in pregnant women results in infant death in up to 40 percent of cases.

Syphilis, like many other STDs, can also facilitate HIV transmission.<sup>7</sup>



## Racial Disparities Persist Across All Reportable STDs

Data from 2008 indicate persistent racial disparities in STD rates, with African-Americans bearing an especially heavy burden.

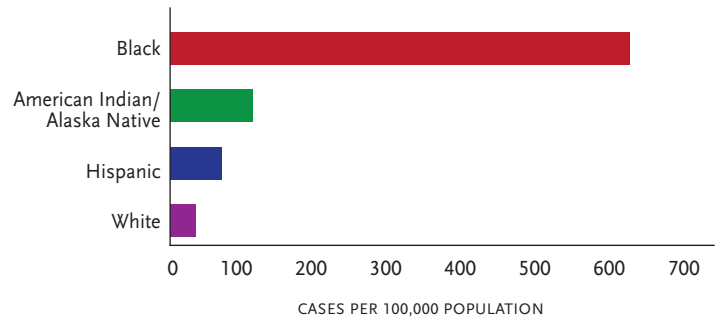
### African-Americans

► *Gonorrhea*: Blacks represent only 12 percent of the total U.S. population, but made up more than 70 percent of gonorrhea cases in 2008 — one of the greatest disparities of any disease, and the most severe racial disparity of all reportable STDs. In 2008, the gonorrhea rate among blacks was more than 20 times higher than that of whites (625.0 cases per 100,000 vs. 31.0). Black girls 15 to 19 years of age had the highest gonorrhea rate of any group (2,934.6 cases per 100,000) in 2008, followed closely by black women 20 to 24 years of age (2,777.0).

► *Chlamydia*: The chlamydia rate among blacks in 2008 was more than eight times higher than that of whites (1,519.3 cases per 100,000 vs. 173.6). As with gonorrhea, young African-American women are at greatest risk. In 2008, black girls 15 to 19 years of age had the highest chlamydia rate of any group (10,513.4 cases per 100,000), followed by black women 20 to 24 years of age (9,373.9).

► *Syphilis*: The syphilis rate among blacks was about eight times higher than that of whites in 2008 (17.3 cases per 100,000 vs. 2.2). While this represents a substantial decline from 1999, when the rate among blacks was 29 times greater than among whites, significant disparities remain. For the last five years, increases in syphilis have been greater among blacks than among whites. The rate of reported syphilis cases among black men increased to 28.0 cases per 100,000 in 2008, up from 22.9 in 2007. Similarly, the syphilis rate among black women increased to 7.6 cases per 100,000 in 2008, compared to 5.5 in 2007. During the same time period, there were much smaller increases among white men (4.0 cases per 100,000 in 2008 vs. 3.7 in 2007) and white women (0.5 cases per 100,000 in 2008 vs. 0.4 in 2007).

Rates of Reported Cases of Gonorrhea, 2008, by Race/Ethnicity



### Hispanics

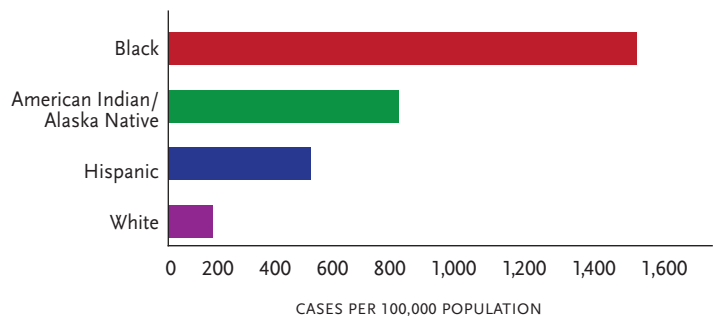
In 2008, Hispanics also experienced significant disparities across all reportable STDs.

► *Gonorrhea*: The rate of reported gonorrhea infections among Hispanics was more than twice that of whites (66.8 cases per 100,000 vs. 31.0).

► *Chlamydia*: Overall rates of chlamydia were almost three times higher among Hispanics than whites (510.4 cases per 100,000 vs. 173.6).

► *Syphilis*: The rate of reported syphilis cases among Hispanics was double that of whites (4.7 cases per 100,000 vs. 2.2).

Rates of Reported Cases of Chlamydia, 2008, by Race/Ethnicity



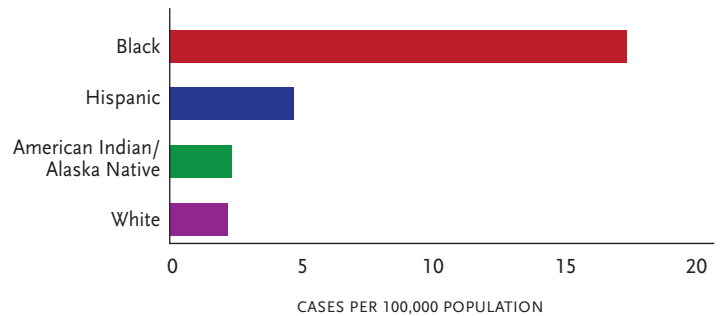


## American Indian/Alaska Natives

In 2008, American Indian/Alaska Natives were also disproportionately affected by STDs.

- ▶ **Gonorrhea:** Gonorrhea rates among American Indian/Alaska Natives were 3.6 times higher than those of whites (110.2 cases per 100,000 vs. 31.0).
- ▶ **Chlamydia:** Chlamydia rates were 4.7 times higher among American Indian/Alaska Natives than among whites (808.8 cases per 100,000 vs. 173.6).
- ▶ **Syphilis:** The rate of reported syphilis among American Indian/Alaska Natives was comparable to that of whites (2.3 cases per 100,000 vs. 2.2).

**Rates of Reported Cases of Primary and Secondary Syphilis, 2008, by Race/Ethnicity**



Reported racial disparities may exist, in part, because racial and ethnic minorities are more likely to seek care in public health clinics that report STDs to CDC more completely than private providers. However, this reporting bias does not fully explain these differences. Socioeconomic barriers to quality healthcare and STD prevention and treatment services have also likely contributed to higher STD rates among racial and ethnic minorities. Ensuring that minority communities have access to STD prevention, screening, treatment, and partner services needed to improve health is critical to addressing these disparities.

## Intensified Efforts Needed To Reduce Toll of STDs

To reduce the toll of STDs and protect the health of millions of Americans, it is critical that public health officials maximize the use of all available tools. CDC supports a comprehensive approach to STD prevention that includes screening, treatment of infected partners, and behavioral interventions — with a focus on reducing racial disparities.

### Screening

Screening is one of the most effective, yet underutilized, tools to identify and treat those who are infected and to help prevent the further spread of STDs.

- ▶ **Chlamydia and Gonorrhea:** Because chlamydia and gonorrhea are most common in young women, and because approximately 70 percent of chlamydia infections and 50 percent of gonorrhea infections in women have no symptoms, CDC recommends annual chlamydia screening for all sexually active women under the age of 26, as well as for older women with risk factors such as new or multiple sex partners.<sup>10</sup> CDC also supports the U.S. Preventive Services Task Force recommendations to screen high-risk sexually active women for gonorrhea.<sup>11</sup> In addition, CDC recommends that sexually active MSM get tested at least annually for both chlamydia and gonorrhea at all anatomic sites of exposure (pharyngeal, urethral, and anal/rectal).<sup>10</sup>

While progress has been made in increasing screening rates, recent data show that less than half of sexually active women under 26 are screened for chlamydia, in part reflecting a lack of awareness among some providers and limited resources for screening.<sup>12</sup> Research shows that simple changes in clinical procedures, such as coupling chlamydia screening with routine Pap testing, can significantly increase the proportion of women screened.<sup>13</sup>

- ▶ **Syphilis:** CDC recommends that all sexually active MSM be tested at least annually for syphilis, and that all pregnant women be screened for syphilis during the early stages of pregnancy to avoid transmission to their infants.<sup>10</sup>



## Treatment

Treatment of STDs is essential, both to prevent serious health consequences for those who are infected and to reduce the further spread of disease. When detected early, treatment is relatively simple. For example, chlamydia and gonorrhea can each be treated with a few pills.

- ▶ *Chlamydia*: CDC recommends that sex partners of those who are infected with chlamydia also get treated in order to prevent re-infection of the original patient. Recent studies have shown that many young women who have been diagnosed with chlamydia became re-infected by male partners who were not diagnosed or treated.<sup>14,15,16</sup> CDC guidelines call for women to be re-tested for chlamydia approximately three months after treatment. For heterosexuals, CDC recommends that, where possible, antibiotic treatment be delivered by patients to their partners if other strategies for reaching and treating partners are not likely to succeed — an approach called expedited partner therapy.<sup>10</sup>
- ▶ *Gonorrhea*: It is critical to expand available gonorrhea treatment options. In April 2007, because of high rates of fluoroquinolone drug resistance in most regions and populations of the country, CDC announced it would no longer recommend that popular class of antibiotics for the treatment of gonorrhea.<sup>17</sup> Today, only a single class of antibiotics — cephalosporins — is available to treat gonorrhea. Continued monitoring for emerging drug resistance remains critical, and accelerated research into new treatments is urgently needed.
- ▶ *Syphilis*: Penicillin given as an injection is the preferred treatment of all stages of syphilis. The dose and the length of treatment depend on the stage of syphilis. Resistance to penicillin has never been identified for syphilis. Sex partners of persons with syphilis should be evaluated and treated.

## Behavioral Interventions

The most reliable ways to avoid infection with an STD are to abstain from sex (i.e., oral, vaginal, or anal sex) or to be in a long-term, mutually monogamous relationship with an uninfected partner. Consistent and correct use of the male latex condom reduces the risk of STD and HIV infection. Expanded access to proven behavioral interventions to reduce the risk of contracting STDs, particularly those tailored for adolescents, MSM, and African-Americans at greatest risk, is an important component of the nation's response. Individual-level and small-group prevention programs have been shown to produce behavioral changes that either reduce risk of exposure to STDs or increase health-seeking behaviors, such as physician visits and requesting STD screening. Some of these programs are specifically tailored to those who experience the greatest disparities in sexual health. For example, the SiHLE and WiLLOW interventions (<http://www.cdc.gov/hiv/topics/research/prs/best-evidence-intervention.htm>) have been found effective in reducing STD infections among African-Americans by reducing STD and HIV risk behaviors and promoting healthy relationships.

## Addressing Racial Disparities

It is critical to reduce the severe racial disparities in STD rates, especially for African-Americans. This will require increased awareness among affected communities of the importance of this problem, as well as a strong public health response to ensure that minority communities have access to prevention, screening, treatment, and partner services. Expanded access to care would be an important contributor to addressing this problem.

It will also require intensified efforts at all levels — federal, state and local — to mitigate the impact of poverty and other social determinants that help contribute to these disparities. More research is needed to understand and respond to factors contributing to racial disparities, including poverty, access to care, and stigma.





## CDC's Approach to STD Prevention

CDC is working with public health partners on a number of fronts to reduce the national STD burden. To make further progress against chlamydia, CDC, the Partnership for Prevention, and eight other national organizations established the National Chlamydia Coalition ([www.prevent.org/ncc](http://www.prevent.org/ncc)). The Coalition, whose membership now exceeds 40 national organizations, recently developed an implementation guide for health care providers to increase chlamydia screening among sexually active adolescents and young adults.

CDC is also continuing its efforts to eliminate syphilis as a health threat in the United States. CDC's Syphilis Elimination Plan outlines a comprehensive approach to syphilis control that is needed at all levels of government to reverse recent national trends in syphilis infection rates. The plan includes action steps to evaluate and improve new strategies to combat the syphilis epidemic among MSM in the hardest-hit U.S. cities, such as online strategies for notifying sexual partners and education campaigns.

CDC also closely tracks STDs to help ensure that prevention resources are targeted to the populations in greatest need, and provides funds to state health departments to support local STD prevention efforts. In 2009, 74 percent of CDC's funding for the Division of STD Prevention went directly to state health departments for disease surveillance, prevention, program development and implementation, and other resources. As part of this effort, CDC provided almost \$28 million to health departments in 2009 to prevent infertility in young women through expanded screening and treatment. CDC also assigned employees to work within state and local health departments on a broad range of disease control and prevention efforts, including direct service provision, program management, and on-site technical assistance. CDC also funds state and local health departments and community organizations to implement prevention programs to reduce risk behavior and increase STD and HIV testing among populations at greatest risk.

## References

- 1 Weinstock H, et al. Sexually transmitted diseases among American youth: incidence and prevalence estimates, 2000. *Perspectives on Sexual and Reproductive Health* 2004;36(1):6-10.
- 2 Chesson HW, et al. The estimated direct medical cost of sexually transmitted diseases among American youth, 2000. *Perspectives on Sexual and Reproductive Health* 2004, 36(1): 11-19.
- 3 CDC, unpublished estimate.
- 4 Hillis SD and Wasserheit JN. Screening for chlamydia — a key to the prevention of pelvic inflammatory disease. *New England Journal of Medicine* 1996;334(21):1399-1401.
- 5 Hook EW and Handsfield HH. Gonococcal infections in the adult. In: Holmes KK, Sparling PF, Stamm WE, et al. eds. *Sexually Transmitted Diseases*, 4th edition. New York: McGraw Hill, Inc., 2008: 627-645.
- 6 Stamm WE. Chlamydia trachomatis infections of the adult. In: Holmes KK, Sparling PF, Stamm WE, et al. eds. *Sexually Transmitted Diseases*, 4th edition. New York: McGraw Hill, Inc., 2008: 575-593.
- 7 Fleming DT and Wasserheit JN. From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection. *Sexually Transmitted Infections* 1999;75:3-17.
- 8 Datta SD et al. Gonorrhea and chlamydia in the United States among persons 14 to 39 years of age, 1999 to 2002. *Ann Int Med* 2007; 147 (2): 89-96
- 9 CDC. HIV prevention through early detection and treatment of other sexually transmitted diseases — United States recommendations of the Advisory Committee for HIV and STD Prevention. *Morbidity and Mortality Weekly Report* 1998; 47(RR-12):1-24.
- 10 CDC. Sexually transmitted diseases treatment guidelines, 2006. *Morbidity and Mortality Weekly Report* 2006;55(RR-11).
- 11 U.S. Preventive Services Task Force. Screening for Gonorrhea: Recommendation Statement. May 2005. Available at: <http://www.ahrq.gov/clinic/uspstf05/gonorrhea/gonrs.htm>.
- 12 National Committee for Quality Assurance. *The State of Health Care Quality 2008*. Washington, D.C., 2008. Available at: <http://www.ncqa.org>.
- 13 Burstein G et al. Chlamydia screening in a health plan before and after a national performance measure introduction. *Obstetrics & Gynecology* 2005;106(2):327-334.
- 14 Whittington et al. Determinants of persistent and recurrent chlamydia trachomatis infection in young women: results of a multicenter cohort study. *Sexually Transmitted Diseases* 2001;28(2):117-123.
- 15 Reitmeijer CA et al. Incidence and repeat infection rates of chlamydia trachomatis among male and female patients in an STD clinic: implications for screening and rescreening. *Sexually Transmitted Diseases* 2002; 29(2):65-72.
- 16 Anschutz et al. Determining risk markers for gonorrhea and chlamydial infection and reinfection among adolescents in public high schools. *Sexually Transmitted Diseases* 2009;36(1):4-8.
- 17 CDC. Update to CDC's Sexually Transmitted Diseases Treatment Guidelines, 2006: Fluoroquinolones No Longer Recommended for Treatment of Gonococcal Infections. *Morbidity and Mortality Weekly Report* 2007;56(14):332-336. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5614a3.htm>.