

Syphilis

Syphilis, a genital ulcerative disease, facilitates the transmission of HIV and may be important in contributing to HIV transmission in those parts of the country where rates of both infections are high. Untreated early syphilis in pregnant women results in perinatal death in up to 40% of cases and, if acquired during the four years preceding pregnancy, may lead to infection of the fetus in over 70% of cases.¹

The rate of primary and secondary (P&S) syphilis reported in the United States decreased during the 1990s; in 2000, the rate was the lowest since reporting began in 1941 (Figure 23). The low rate of infectious syphilis and the concentration of the majority of syphilis cases in a small number of geographic areas in the United States led to the development of the CDC's National Plan to Eliminate Syphilis, which was announced by Surgeon General David Satcher in October 1999.² Collaboration with diverse organizations, public health professionals, the private medical community, and other partners working in the fields of STD and HIV is essential for the successful elimination of syphilis in the United States.³

Although the rate of P&S syphilis in the United States declined by 89.7% during 1990-2000, the rate of P&S syphilis remained unchanged between 2000 and 2001 and increased in 2002 and 2003. Overall increases in rates during 2001-2003 were observed only among men.

Despite national progress toward syphilis elimination, particularly among African-Americans and in the South, syphilis remains an important problem in the South and in some urban areas in other regions of the country. Recently, several outbreaks of syphilis occurring among men who have sex with men (MSM) have been reported which have been characterized by high rates of HIV co-infection and high-risk sexual behavior.⁴⁻¹¹

- In 2003, P&S syphilis cases reported to CDC increased to 7,177 from 6,862 in 2002, an increase of 4.6%. The rate of P&S syphilis in the United States in 2003 (2.5 cases per 100,000 population) was 4.2% higher than the rate in 2002 (2.4 cases per 100,000 population), and it is greater than the Healthy People 2010 (HP2010) target of 0.2 case per 100,000 population (Figure 25, Table 1).¹²
- During 2002-2003, the number of cases of early latent syphilis reported to CDC decreased 0.8% (from 8,429 to 8,361) while the number of cases of late and late latent syphilis increased 6.7% (from 17,168 to 18,319) (Table 1). The total number of cases of syphilis (all stages: P&S, early latent, late latent, and congenital syphilis) reported to CDC increased 4.1% (from 32,912 to 34,270) during 2002-2003 (Table 1).
- The rate of P&S syphilis increased 13.5% among men (from 3.7 cases to 4.2 cases per 100,000 men) between 2002 and 2003 (Figure 29, Table 28). During this time, the rate declined 27.3% among women (from 1.1 to 0.8 cases per 100,000 women) (Figure 29, Table 27).

- The male-to-female rate ratio for P&S syphilis has risen steadily since 1996 when it was 1.2 (Figure 31), suggesting an increase in syphilis among MSM during this time. The male-to-female rate ratio in 2002 was 3.4; and in 2003 it was 5.2.
- An increase in male-to-female rate ratio for P&S syphilis occurred among all racial and ethnic groups during 2002-2003. The male-to-female rate ratio for P&S syphilis increased from 11.0 to 14.5 among non-Hispanic whites, from 2.1 to 2.8 among African-Americans, from 5.1 to 6.2 among Hispanics, from 7.0 to 20.0 among Asian/Pacific Islanders, and from 1.2 to 2.8 among American Indian/Alaska Natives (Table 34B).
- An increase in the male-to-female rate ratio for P&S syphilis occurred in the District of Columbia, Puerto Rico and in 19 (58%) of 33 states that reported at least 25 cases in 2003.
- African-Americans accounted for 39.2% of cases of P&S syphilis in 2003 and 49.8% in 2002. During 2002-2003, the rate of P&S syphilis declined 17.9% among African-Americans, reflecting a 9.9% decrease in the number of cases among men (from 2,226 to 2,005) and a 32.6% decrease among women (from 1,195 to 805). The rate among non-Hispanic whites increased 25.0%; cases among men increased 32.0% (from 2,108 to 2,783) and cases among women increased 4.6% (from 217 to 227). The rate among Hispanics increased 20.0%; cases among men increased 21.6% (from 823 to 1,001), and cases among women increased 8.2% (from 147 to 159). The rate among Asian/Pacific Islanders increased 25.0%; cases among men increased (from 83 to 119), but decreased among women (from 11 to 8). The rate among American Indian/Alaska Natives increased 38.1%; cases among men increased (from 27 to 50), but decreased among women (from 24 to 19). (Figure 30, Tables 34A and 34B).
- In 2003, the rate of P&S syphilis reported among African-Americans (7.8 cases per 100,000 population) was 5.2 times greater than the rate among non-Hispanic whites (1.5 cases per 100,000 population). This differential was less than that in 2002, when the rate of P&S syphilis among African-Americans was 7.9 times greater than the rate among non-Hispanic whites (Table 34B). The decline in the difference in rates between African-Americans and non-Hispanic whites between 2002 and 2003 is due to a decrease in the rate among African-Americans in conjunction with an increase in the rate among non-Hispanic whites.
- The incidence of P&S syphilis was highest among women aged 20-24 years (2.4 cases per 100,000 population) and among men aged 35-39 (11.8 cases per 100,000 population) in 2003 (Figure 32, Table 34B).
- The South accounted for 44.8% of P&S syphilis in 2003 and 45.8% in 2002. During 2002-2003, rates increased in all U.S. regions except the Midwest; rates increased 3.3% in the South (from 3.0 to 3.1 cases per 100,000 population), 23.5% in the Northeast (from 1.7 to 2.1), and 22.7% in the West (from 2.2 to 2.7); the rate decreased 23.8% in the Midwest (from 2.1 to 1.6). The 2003 rates in all regions were greater than the HP2010 target of 0.2 case per 100,000 population (Figure 28, Table 26).
- In 2003, P&S syphilis rates in 5 states were less than or equal to the HP2010 national target of 0.2 case per 100,000 population (Figure 26, Table 24). Seven

states and two outlying areas reported five or fewer cases of P&S syphilis in 2003 (Tables 24 and 26).

- In 2003, 2,530 (80.6%) of 3,140 counties in the United States reported no cases of P&S syphilis compared with 2,534 (80.7%) counties reporting no cases in 2002. Of 610 counties reporting at least one case of P&S syphilis in 2003, 8 (1.3%) had rates at or below the HP2010 target of 0.2 case per 100,000 population. Rates of P&S syphilis were above the HP2010 target for 602 counties in 2003 (Figure 27). These 602 counties (19.2% of the total number of counties in the United States) accounted for 99.9% of the total P&S syphilis cases reported in 2003.
- In 2003, half of the total number of P&S syphilis cases were reported from 18 counties and 1 city (Table 25).
- The overall rate of P&S syphilis in 2003 for 63 selected large U.S. cities (6.1 cases per 100,000 population) did not change from the rate in 2002 (Table 30). Rates exceeded the HP2010 target of 0.2 case per 100,000 population in all but 3 of the 63 cities in 2003 (Table 29).
- During 1990-2003, the proportion of P&S syphilis cases reported from sources other than STD clinics increased from 25.6% to 67.5% (Figure 24). During 2000-2003, the number of cases reported from non-STD clinic sources increased each year and the number of cases reported from STD clinics decreased each year.
- Between 2002 and 2003, the overall rate of congenital syphilis decreased 8.8% in the United States, from 11.3 to 10.3 cases per 100,000 live births (Figure 34, Table 39). The continuing decline in the rate of congenital syphilis (Figure 34) likely reflects the substantial reduction in the rate of P&S syphilis among women that has occurred during the last decade (Figure 33).^{13,14}
- During 1991-2003, the average yearly percentage decrease in the congenital syphilis rate was 17.2% (Table 39). The average yearly percentage decrease in the rate of P&S syphilis among women during 1991-2003 was 21.4%.
- In 2003, 29 states, the District of Columbia, and two outlying areas had rates of congenital syphilis that exceeded the HP2010 target of 1.0 case per 100,000 live births (Tables 40-42).
- Thirty-one (49.2%) of 63 selected cities in the United States had congenital syphilis rates greater than the HP2010 target of 1.0 case per 100,000 live births in 2003 (Table 42). All of these cities had rates that were more than seven times the HP2010 target.
- Additional information about syphilis and congenital syphilis in racial and ethnic minority populations, adolescents, men who have sex with men, and other at risk populations can be found in the **Special Focus Profiles**.

¹ Ingraham NR. The value of penicillin alone in the prevention and treatment of congenital syphilis. *Acta Derm Venereol* 31 (suppl 24):60,1951.

² Division of STD Prevention. *The National Plan to Eliminate Syphilis from the United States*. National Center for HIV, STD, and TB Prevention, Centers for Disease Control and Prevention, 1999.

³ Centers for Disease Control and Prevention. Primary and secondary syphilis – United States, 1999. *MMWR* 2000;50:113-117.

- ⁴ Centers for Disease Control and Prevention. Resurgent bacterial sexually transmitted disease among men who have sex with men – King County, Washington, 1997-1999. *MMWR* 1999;48:773-777.
- ⁵ Centers for Disease Control and Prevention. Outbreak of syphilis among men who have sex with men – Southern California, 2000. *MMWR* 2001;50(7):117-20.
- ⁶ Bronzan R, Echavarria L, Hermida J, Trepka M, Burns T, Fox, K. Syphilis among men who have sex with men (MSM) in Miami – Dade County, Florida [Abstract no. P135]. In: Program and abstracts of the 2002 National STD Prevention Conference, San Diego, California, March 4-7, 2002.
- ⁷ Centers for Disease Control and Prevention. Primary and secondary syphilis among men who have sex with men – New York City, 2001. *MMWR* 2002;51:853-6.
- ⁸ Chen SY, Gibson S, Katz MH, Klausner JD, Dilley JW, Schwarcz SK, Kellogg TA, McFarland W. Continuing increases in sexual risk behavior and sexually transmitted diseases among men who have sex with men: San Francisco, California, 1999-2001 [Letter]. *Am J Public Health* 2002;92:1387-8.
- ⁹ Ciesielski CA, Boghani S. HIV infection among men with infectious syphilis in Chicago, 1998-2000 [Abstract no. 12]. In: Program and abstracts of the 9th Conference on Retroviruses and Opportunistic Infections, Seattle, Washington, February 24-28, 2002.
- ¹⁰ D'Souza G, Lee JH, Paffel JM. Outbreak of syphilis among men who have sex with men in Houston, Texas. *Sex Transm Dis* 2003;30:872-3.
- ¹¹ Robinson BC, Chiliade PA, Lee C, Bautista J, Saenz G. Redirecting elimination efforts in response to the changing epidemiology of syphilis [Abstract 167]. In: Program and abstracts of the 2004 National STD Prevention Conference, Philadelphia, Pennsylvania, March 8-11, 2004.
- ¹² U.S. Department of Health and Human Services. *Healthy People 2010*. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, DC: U.S. Government Printing Office, November 2000.
- ¹³ Centers for Disease Control and Prevention. Congenital syphilis – United States, 2002. *MMWR* 2004;53:716-9.
- ¹⁴ Centers for Disease Control and Prevention. Primary and secondary syphilis – United States, 2002. *MMWR* 2003;52(46):1117-20.

Figure 23. Syphilis — Reported cases by stage of infection: United States, 1941–2003

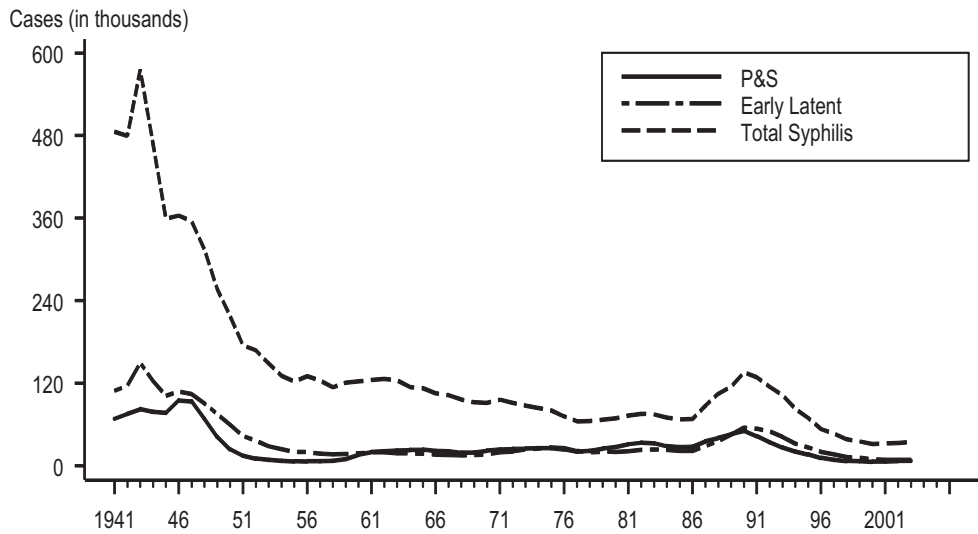
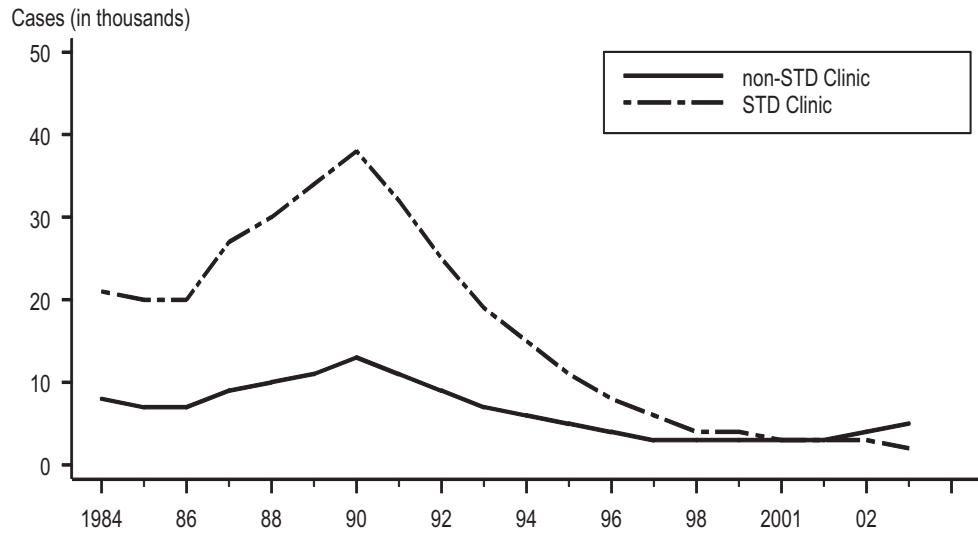
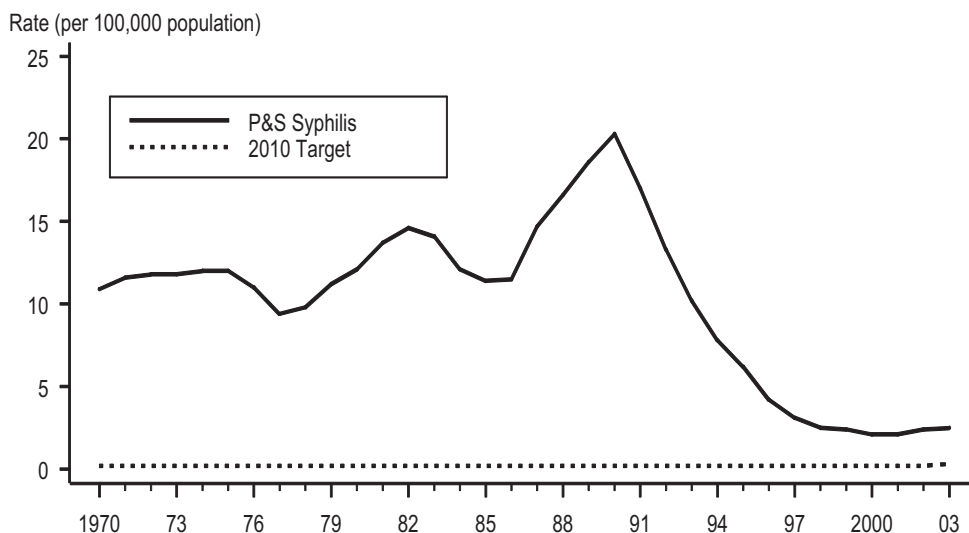


Figure 24. Primary and secondary syphilis — Reported cases by reporting source: United States, 1984-2003



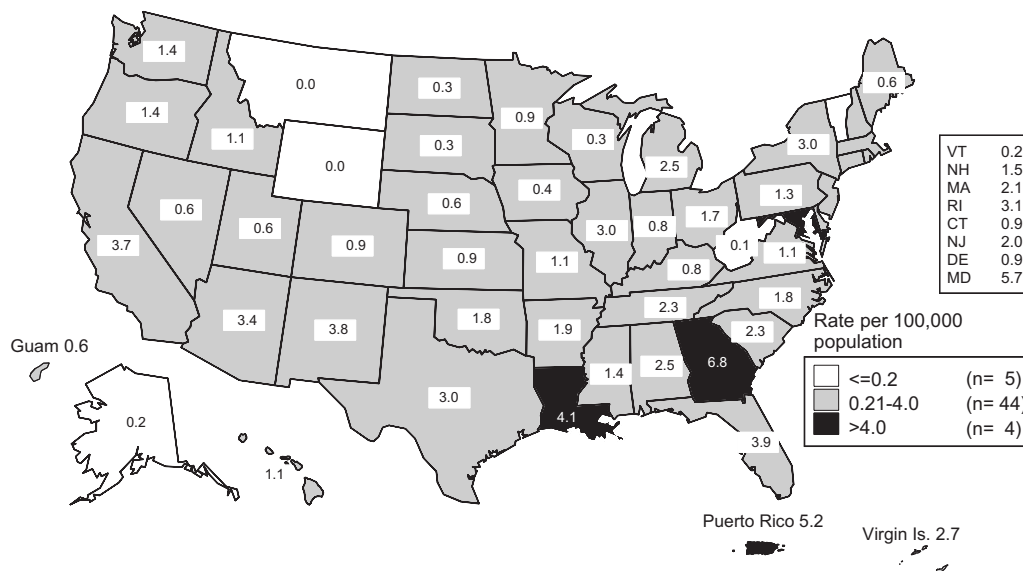
Note: Prior to 1996, the STD clinic source of report corresponded to public (clinic) source of report, and the non-STD clinic category corresponded to private source of report. See Appendix (Reporting Sources). After 1996, as states began reporting morbidity data electronically, the specific source of report (i.e., STD clinic) became available from an increasing number of states.

Figure 25. Primary and secondary syphilis — Rates: United States, 1970–2003 and the Healthy People 2010 target



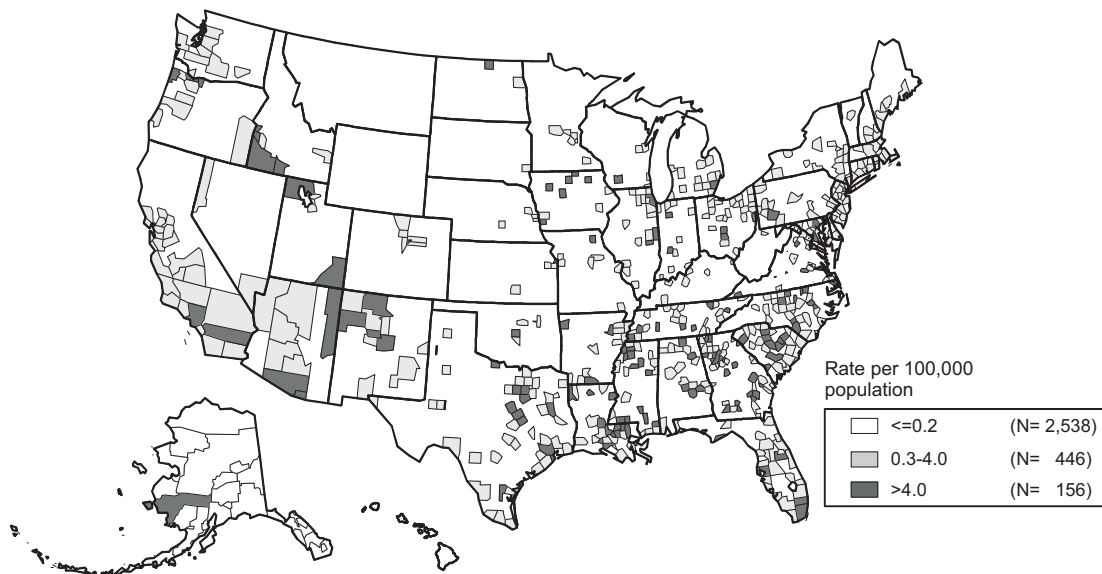
Note: The Healthy People 2010 target for P&S syphilis is 0.2 case per 100,000 population.

Figure 26. Primary and secondary syphilis — Rates by state: United States and outlying areas, 2003



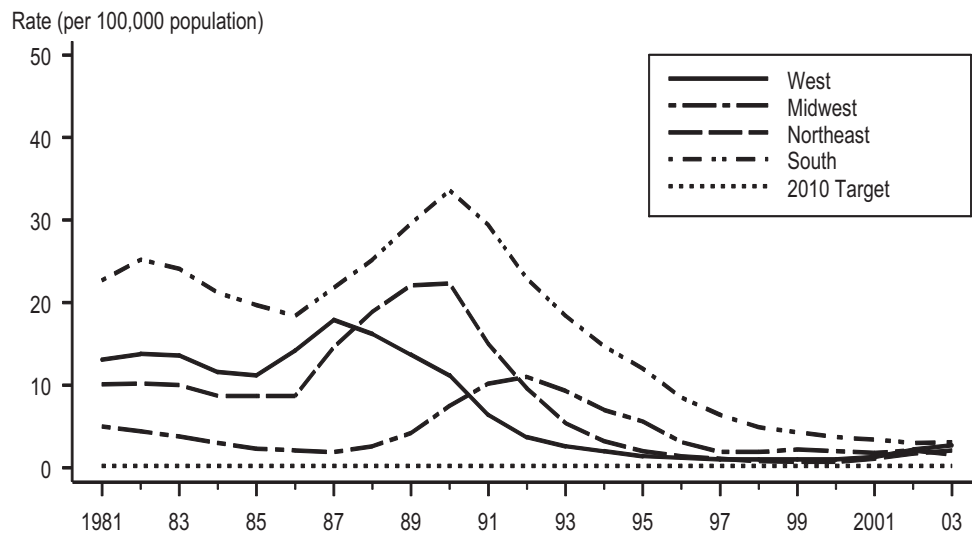
Note: The total rate of primary and secondary syphilis for the United States and outlying areas (Guam, Puerto Rico and Virgin Islands) was 2.5 per 100,000 population. The Healthy People 2010 target is 0.2 case per 100,000 population.

Figure 27. Primary and secondary syphilis — Rates by county: United States, 2003



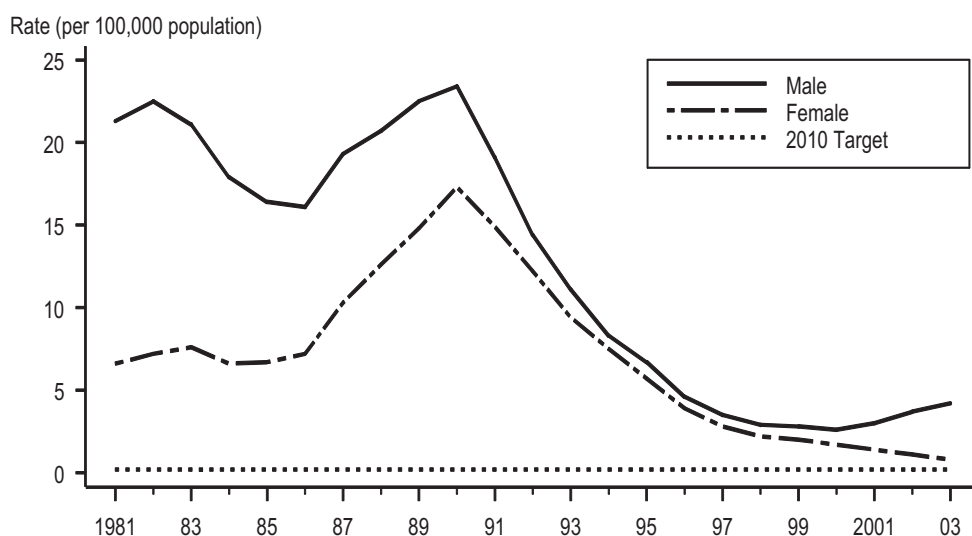
Note: The Healthy People 2010 target for P&S syphilis is 0.2 case per 100,000 population.

Figure 28. Primary and secondary syphilis — Rates by region: United States, 1981–2003 and the Healthy People 2010 target



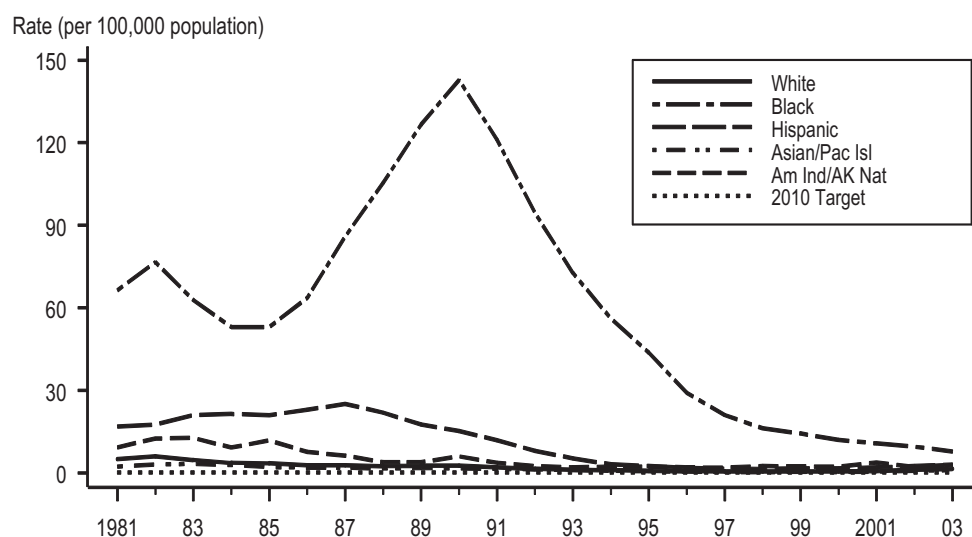
Note: The Healthy People 2010 target for P&S syphilis is 0.2 case per 100,000 population.

Figure 29. Primary and secondary syphilis — Rates by sex: United States, 1981–2003 and the Healthy People 2010 target



Note: The Healthy People 2010 target for P&S syphilis is 0.2 case per 100,000 population.

Figure 30. Primary and secondary syphilis — Rates by race and ethnicity: United States, 1981–2003 and the Healthy People 2010 target



Note: The Healthy People 2010 target for P&S syphilis is 0.2 case per 100,000 population.

Figure 31. Primary and secondary syphilis — Male-to-female rate ratios: United States, 1981–2003

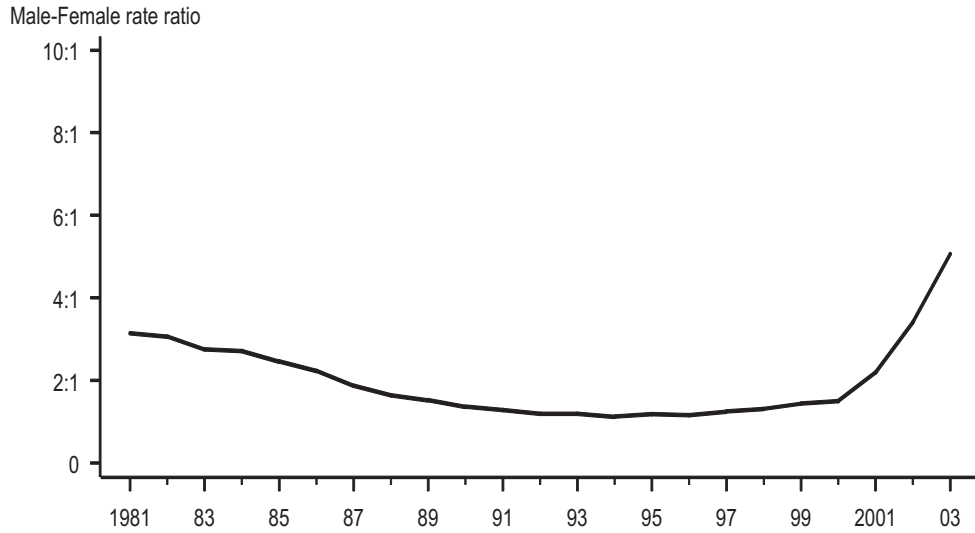
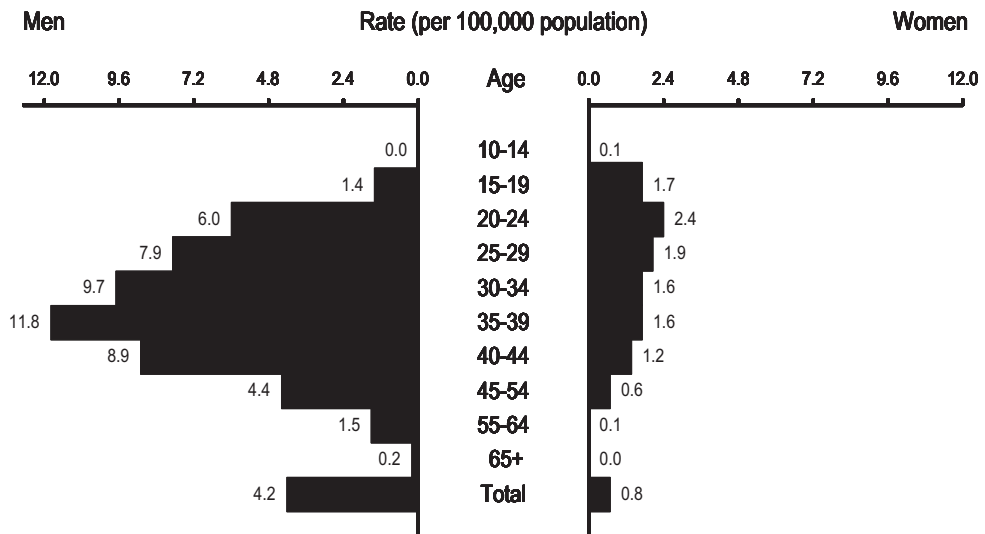
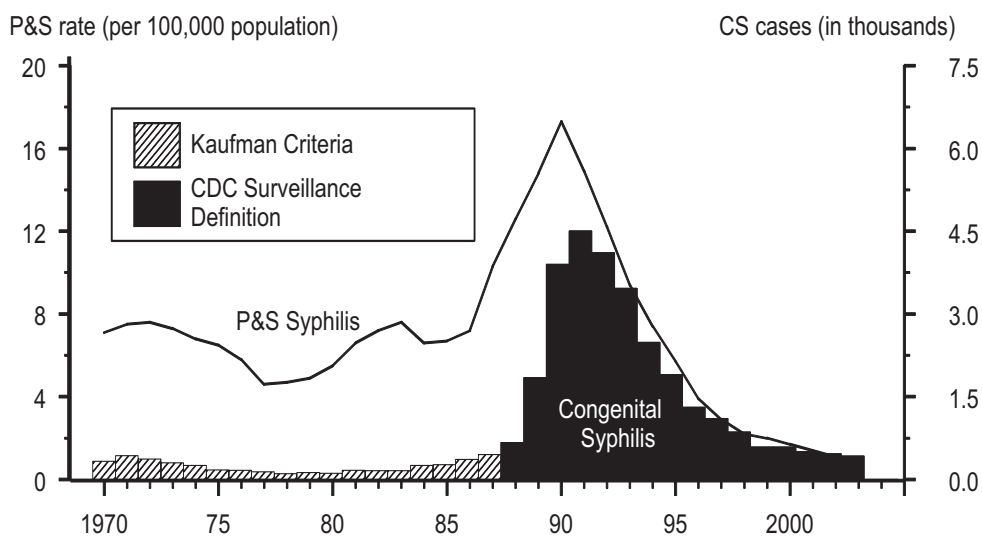


Figure 32. Primary and secondary syphilis — Age- and sex-specific rates: United States, 2003



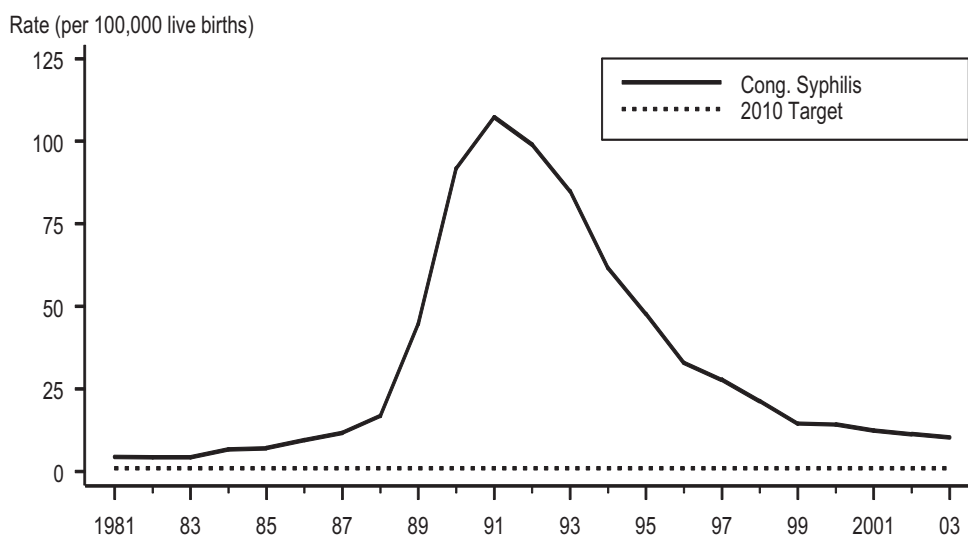
Note: See Table 33.

Figure 33. Congenital syphilis — Reported cases for infants <1 year of age and rates of primary and secondary syphilis among women: United States, 1970–2003



Note: The surveillance case definition for congenital syphilis changed in 1988. See Appendix (Reporting of Congenital Syphilis Cases). Case counts for congenital syphilis shown in this graph correspond to those listed in Table 39.

Figure 34. Congenital syphilis — Rates for infants <1 year of age: United States, 1981–2003 and the Healthy People 2010 target



Note: The Healthy People 2010 target for congenital syphilis is 1.0 case per 100,000 live births. The surveillance case definition for congenital syphilis changed in 1988. See Appendix (Reporting of Congenital Syphilis Cases).