Congenital Syphilis—United States, 1998

**Congenital Syphilis (CS) occurs when the spirochete *Treponema pallidum* is transmitted from a pregnant woman with syphilis to her fetus. A multorgan infection, CS may result in a neurologic or musculoskeletal handicap or death in the fetus when not properly treated. Trends in CS rates in women of childbearing age follow by approximately 1 year the rates of primary and secondary syphilis.** The last national syphilis epidemic, which was followed by a CS epidemic, occurred during the late 1980s and early 1990s. The syphilis rate began to decline in 1991; the CS rate began to decline in 1992. To evaluate CS epidemiology since this decline, CDC analyzed 1998 notifiable disease data and assessed rate changes during 1992-1998. This report summarizes the results, which indicate that the CS rate declined 78.2% from 1992 to 1998, and that rates remained disproportionately high in the southeastern United States and among minority racial/ethnic populations.

CS surveillance data were reported to CDC from the 50 states and District of Columbia. For the purpose of public health surveillance, CS is defined as (1) infants manifesting typical signs of CS or in whom *T. pallidum* is identified from lesions, placenta, umbilical cord, or autopsy specimens; (2) infants whose mothers have a syphilitic lesion at delivery; (3) infants born to women with untreated or inadequately treated syphilis before or during pregnancy, and to women whose serologic response to penicillin therapy was not documented, and either (a) no examination of the infant was performed radiographically and by cerebrospinal fluid (CSF), or (b) one or more radiologic or CSF tests were consistent with CS.* CS rates per 100,000 live births were determined from state natality data.†

In 1998, 801 CS cases were reported for a rate of 20.6 per 100,000 live births. The median state-specific rate of CS was substantially higher in the South (23.0) compared with a median of zero in the Midwest, Northeast, and West‡. Forty-seven states reported rates below the 2000 goal of 40 per 100,000 (objective 19.4)‡; 22 states reported no cases.

**Persons of minority race/ethnicity accounted for the highest rates of CS in 1998.** Blacks had the highest rate (87.0), followed by Hispanics (27.9), American Indians/Alaska Natives (14.0), Asians/Pacific Islanders (4.9), and non-Hispanic whites (2.9). For 16 persons, race was unknown or categorized "other." CS rates declined for all racial and ethnic groups during 1992-1998 following the decline in primary and secondary syphilis. Asians/Pacific Islanders (82.4%) had the largest percentage decline, followed by blacks (79.5%), Hispanics (78.5%), whites (56.9%), and American Indians/Alaska Natives (11.9%). In 1998, 73.4% of mothers of infants with CS were aged 20-34 years (median: 27 years). The CS rate was highest for women aged 45-49 years (65.7) and lowest for women aged 10-14 years (17.9) (age was unknown for two persons). Women aged 35-49 years had a slightly higher rate (23.2) than women aged 10-34 years (20.2).

Of the 801 reported cases, 651 (81.3%) occurred because the mother received no penicillin treatment or inadequate treatment before or during pregnancy; in 233 (35.8%) of these cases, the mother received no prenatal care. Infants of mothers who had an unknown or equivocal response to therapy accounted for 91 (11.4%) of all cases; in 30 of these cases, the infant was evaluated and found to have evidence of CS radiographically or by examination of CSF. The remaining 59 (7.4%) infants were reported to have CS because of inappropriate serologic response to therapy in the mother, evidence of treatment failure or re-infection, or other reasons. Of the reported 801 infants, 748 (93.4%) were live born, 45 (5.6%) were stillborn; eight (1.0%) of those born alive were reported to have died, six within the first 2 days of life.

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**CDC Editorial Note:** In 1998, CS rates continued a downward trend parallel to the decreased rates for primary and secondary syphilis. Al-
though the South leads other regions in CS reports, the median state-specific rate in this region declined 68.6% since 1992. Historically, the South has had the highest syphilis and CS rates. Factors associated with syphilis include inadequate access to sexually transmitted disease (STD) clinics and STD outreach activities, poor interagency coordination, lack of employment opportunities, and discomfort with discussing STDs.\textsuperscript{3}

Racial/ethnic minorities continue to be affected disproportionally by CS. No biologic association exists between race and the risk for delivering an infant with CS; race serves as a marker for other factors, such as poverty and access to health care, in communities with high syphilis rates.\textsuperscript{5,7} Individual factors, such as illicit drug use and the wantedness of pregnancy, also influence the chances of a mother delivering an infant with CS.

The findings in this report are subject to at least three limitations. First, the analysis includes inconsistent application of the case definition in some areas. Second, maternal treatment history and infant laboratory data reporting were incomplete at times. Third, the case report form does not include questions about important risk information (e.g., drug use, health insurance, and wantedness of pregnancy), although studies that have collected these data have suggested their importance.\textsuperscript{8,9}

CS surveillance is complicated by difficulty in establishing the diagnosis. Most infants born with CS have no signs of the disease at birth. If untreated, symptoms may begin within 3 months after birth and may include anemia, skin rash, hepatosplenomegaly, and nasal discharge. CS is almost entirely preventable with early prenatal screening and treatment.\textsuperscript{9} The primary reason that infants were born with CS in 1998 is because mothers with syphilis during pregnancy either received no prenatal care, syphilis serologic testing was performed too late in pregnancy, or mothers were tested but received late or no follow-up.

Community-based organizations, maternal- and child-health programs, and substance abuse agencies can assist in preventing CS by collaborating with health-care providers to encourage pregnant women to obtain prenatal care the first trimester. Health-care providers who perform pregnancy testing where syphilis rates are high also should perform the rapid plasma reagin card test on-site when a woman has a positive pregnancy test and again the third trimester so that results and treatment can be provided immediately. Health-care providers should treat a pregnant woman with syphilis as a medical emergency. Data reported in this study indicate the need to train prenatal health-care providers in recognizing, treating, and preventing CS, and the need to address social problems associated with syphilis as part of the renewed efforts toward its elimination in the United States.\textsuperscript{10}


\textbf{REFERENCES}

6. CDC. Use of race and ethnicity in public health surveillance. MMWR 1993;42(no. RR-10).