

Sexually Transmitted Disease Surveillance 2000 Supplement

**Chlamydia Prevalence Monitoring Project
Annual Report 2000**

**Division of STD Prevention
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Chlamydia Prevalence Monitoring Project Annual Report – 2000

The Centers for Disease Control and Prevention's (CDC) Chlamydia Prevalence Monitoring Project is a collaborative effort among Regional Infertility Prevention Projects, STD project areas, state epidemiologists and public health laboratory directors, the U.S. Department of Labor, and the Indian Health Service (IHS) to monitor the prevalence of genital *Chlamydia trachomatis* infections among women screened for this infection in the United States through publicly-funded programs. The data presented on chlamydial infection in this report complement and supplement data presented in CDC's 2000 STD Surveillance Report.¹

Introduction

Since 1988, CDC has supported screening programs for *Chlamydia trachomatis* infections in women and has monitored positivity to evaluate program impact. As documented by chlamydia case reporting (i.e., morbidity) data, case rates following initiation of chlamydia screening and treatment programs have resulted in initial increases in cases detected and reported. To minimize the impact of variation in chlamydia testing and reporting on the interpretation of surveillance data, CDC, states, and Regional Infertility Prevention Projects use screening positivity data to estimate chlamydia prevalence among selected populations. This report compares data on chlamydia prevalence in selected populations with data reported to CDC through the case reporting system.

Sources of Data

Regional Infertility Prevention Projects

Chlamydia screening and prevalence monitoring activities were initiated in Public Health Service (PHS) Region X in 1988 as a CDC-supported demonstration project. In 1993, as part of the development of the national Infertility Prevention Program, chlamydia screening services for women were initiated in three additional PHS regions (III, VII, VIII) and in 1995 services were implemented in the remaining PHS regions (I, II, IV, V, VI, IX).^{2,3} All Regional Projects, in collaboration with state STD control and family planning programs, report their chlamydia positivity data to CDC. In some of the PHS regions, federally-funded chlamydia screening supplements existing local- and state-funded testing programs. These publicly-funded programs support chlamydia screening primarily in family planning clinics, but also in some STD clinics, prenatal clinics, jails and juvenile detention centers, and other sites.

State and Local Health Departments

In 2000, 50 states and the District of Columbia reported chlamydia cases to CDC. Additionally, in 2000, 23 states reported STD prevalence data from persons entering jails and juvenile detention facilities as part of the Jail STD Prevalence Monitoring Project.

National Job Training Program

Since 1990, approximately 20,000 female National Job Training Program entrants have been screened each year for chlamydia, with all tests performed at a central laboratory using a single test type.⁴ Changes in laboratory and test type (EIA to DNA probe) occurred in mid-1997. The National Job Training Program, administered by the U.S. Department of Labor, is primarily a residential job training program for urban and rural disadvantaged youth aged 16 to 24 years at more than 100 sites throughout the country. The Department of Labor makes these chlamydia test results available to CDC to calculate prevalence in this population.

Indian Health Service

In 2000, approximately 38,000 women aged 15 to 30 years were screened at 86 facilities in four of 12 Indian Health Service (IHS) regions. The Indian Health Service provided these data to CDC.

Data Limitations

The interpretation of chlamydia data is complicated by several factors. First, case reports and prevalence data result from the use of several different types of diagnostic tests for chlamydial infection (e.g., direct fluorescent antibody, EIA, DNA probe assay, DNA amplification); these tests vary in their sensitivity and specificity. Second, chlamydia positivity among women attending clinics is an estimate of prevalence; it is not true prevalence. Crude positivity may include those women who are tested two or more times during a single year. Comparisons of positivity with prevalence have shown that in family planning clinics, positivity is generally similar to or slightly higher than prevalence, and in STD clinics, positivity is somewhat lower than prevalence; however, these differences are usually small, with the relative difference <10%.⁵ Third, while nearly all family planning clinics perform universal screening of sexually active women <20 years of age, and most clinics do so among women <25 years of age, some selective screening is performed among women 20-24 years old and some level of screening is frequently performed among women >25 years of age. Fourth, while monitoring prevalence among persons seeking care at clinics provides important information on certain segments of the population, these data cannot be generalized to the population as a whole.

The data from the National Job Training Program are an exception to the first three caveats. All tests are performed using a single test type. Data are limited to entrance exam testing; therefore, no women are included twice. All women entering the National Job Training Program are required to be tested.

As noted above, various laboratory test methods were used for all data. Except for Figure 4, the figures presented do not include an adjustment of test positivity based on laboratory test type and sensitivity. In Figure 4, the chlamydia test results for each test type were weighted to reflect the sensitivity of the test used.^{6,7} The weights used in this adjustment are the reciprocals of the sensitivities of the laboratory test used. Test-specific sensitivities were defined as the midpoints of the ranges of published values for the sensitivities for each technology type.⁷ Limitations of this adjustment include unknown dates when laboratories changed tests, missing information on the type of test used, variation of test sensitivity within a technology type, and no adjustment for use of supplemental methods that could increase test sensitivity.

Chlamydia Data Reported In 2000

Case reports

In 2000, 702,093 chlamydial infections were reported to CDC from 50 states and the District of Columbia. The reported number of cases of chlamydial infection was about two times greater than the reported cases of gonorrhea (358,995 gonorrhea cases were reported in 2000). From 1987 through 2000 the reported rate of chlamydial infection among women increased from 78.5 cases per 100,000 population to 404.0 (Figure 1). These increases in the reported national chlamydia rate likely represent

increased chlamydia screening, increased use of nucleic acid amplification tests which are more sensitive than other types of screening tests, and improved reporting, as well as the continuing high burden of disease.

In 2000, state- and outlying area-specific chlamydia rates among women ranged from 110.1 per 100,000 to 763.2 per 100,000 (Figure 2). This variation in rates reflects both state-specific differences in screening and reporting practices, and in true disease burden.

Chlamydia positivity among women in family planning and prenatal clinics

In 2000, the median state-specific chlamydia test positivity among 15- to 24-year-old women screened in family planning clinics was 5.2% (range, 2.3% to 15.8%, Figure 3).

The effectiveness of large-scale screening programs in reducing chlamydia prevalence has been well documented in areas where this intervention has been in place for several years.^{8,9} In 2000, after adjusting trends in chlamydia positivity to account for changes in laboratory test methods and associated increases in test sensitivity,¹⁰ chlamydia test positivity decreased in four of 10 HHS regions from 1999 to 2000 and increased in six regions (Figure 4). Although chlamydia positivity has declined in the past year in some regions due to the effectiveness of screening and treatment of women, continued expansion of screening programs to populations with higher disease prevalence may have contributed to the increases in positivity in other regions.

In 2000, the median state-specific chlamydia test positivity among 15- to 24-year-old women screened in selected prenatal clinics in 23 states and Puerto Rico was 5.9% (range, 2.2% to 14.5%, Figure 5).

Chlamydia prevalence among female National Job Training Program entrants

Among women entering the National Job Training Program in 2000, based on their place of residence before program entry, state-specific chlamydia prevalence ranged from 6.8% to 19.8% in 30 states and Puerto Rico (Figure 6). The median state-specific chlamydia prevalence was 11.9%.

Chlamydia positivity among women entering juvenile and adult corrections facilities

Data on positivity of chlamydial infection among women entering juvenile or adult corrections facilities were reported to CDC from 23 states (Figure 7). Among women entering juvenile facilities in 2000, chlamydia prevalence ranged from 1.5% to 28.9%, and among those entering adult facilities, prevalence ranged from 0.8% to 15.5%.

Chlamydia positivity among women attending Indian Health Service clinics

In 2000, chlamydia positivity among 15- to 30- year-old women screened at clinics in four IHS regions ranged from 3.9% to 9.9% (Figure 8).

Notes on State-Specific Data

Morbidity Surveillance: Reporting of Chlamydia Cases

Figure A. Chlamydia rate per 100,000 women, 1991 - 2000.

Crude incidence rates (new cases/population) were calculated on an annual basis per 100,000 population. In this report, the 2000 rates for all states were calculated by dividing the number of cases reported from each area in 2000 by the estimated area-specific 1999 population. Rates for 1991-2000 were calculated using postcensal population estimates based on the Bureau of the Census data (U.S. Bureau of the Census; 1991-1999 Estimates of the Population of Counties by Age, Sex and Race/Hispanic Origin: 1990 to 1999; machine-readable data files).

Prevalence Monitoring: Reporting of Chlamydia Positivity

Figure B. Chlamydia positivity among women 15 to 24 years of age, by testing site, 1990-2000; Table 1. Chlamydia positivity among women 15 to 44 years of age by testing site, 2000; Figure C. Chlamydia positivity by age group among women attending family planning clinics, 2000.

Chlamydia test positivity data are presented from those states reporting results on 500 or more women screened during 2000. Chlamydia test positivity was calculated by dividing the number of women testing positive for chlamydia (numerator) by the total number of women tested for chlamydia (denominator includes those with valid test results only and excludes unsatisfactory and indeterminate tests) and was expressed as a percentage. The denominator may contain multiple tests from the same individual if that person was tested more than once during the period for which screening data are reported. Various chlamydia laboratory methods were used and no adjustments of test positivity were made based on laboratory test type and sensitivity. Chlamydia prevalence data on female National Job Training Program entrants are not presented when the number of persons tested from a state was fewer than 100. The number of clinics cited in Table 1 for each state represents family planning, STD, prenatal, Indian Health Service (IHS), and other clinics screening 25 or more women and juvenile and adult corrections facilities screening 100 or more women.

References

- ¹Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance, 2000*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, September 2001.
- ²Hillis S, Black C, Newhall J, Walsh C, Groseclose SL. New opportunities for chlamydia prevention: applications of science to public health practice. *Sex Transm Dis* 1995;22:70-5.
- ³Centers for Disease Control and Prevention. *Chlamydia trachomatis* genital infections - United States, 1995. *MMWR* 1997;46:193-8.
- ⁴Mertz KJ, Ransom RL, St. Louis ME, Groseclose SL, et al. Decline in the prevalence of genital chlamydial infection in young women entering a National Job Training Program. *Am J Pub Health* 2001;91(8):1287-90.
- ⁵Dicker LW, Mosure DJ, Levine WC. Chlamydia positivity versus prevalence: what's the difference? *Sex Transm Dis* 1998;25:251-3.
- ⁶Newhall WJ, DeLisle S, Fine D, et al. Head-to-head evaluation of five different non-culture chlamydia tests relative to a quality-assured culture standard. *Sex Transm Dis* 1994;21:s165-6.
- ⁷Centers for Disease Control and Prevention. 2001 Guidelines for the Laboratory Detection of *Chlamydia trachomatis* and *Neisseria gonorrhoea* Infections. (In preparation).
- ⁸Addiss DG, Vaughn ML, Ludka D, Pfister J, Davis JP. Decreased prevalence of *Chlamydia trachomatis* infection associated with a selective screening program in family planning clinics in Wisconsin. *Sex Transm Dis* 1993;20:28-35.
- ⁹Mertz KJ, Levine WC, Mosure DJ, Berman SM, Dorian KJ. Trends in the prevalence of chlamydial infections: the impact of community-wide testing. *Sex Transm Dis* 1997;24:169-75.
- ¹⁰Dicker LW, Mosure DJ, Levine WC, Black CM, Berman SM. Impact of switching laboratory tests on reported trends in *Chlamydia trachomatis* infections. *Am J Epidemiol* 2000;151:430-5.

Acknowledgments

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This report was prepared by the following staff members of the Surveillance and Special Studies Section of the Epidemiology and Surveillance Branch and the Statistics and Data Management Branch of the Division of STD Prevention, National Center for HIV, STD, and TB Prevention, Centers for Disease Control and Prevention: Susan Bradley, Jim Braxton, Sharon Clanton, Darlene Davis, Linda Webster Dicker, LaZetta Grier, Kathleen Hutchins, Richard Kahn, Debra Mosure, and Emmett Swint.

Figure 1. Chlamydia — Rates by gender: United States, 1984–2000

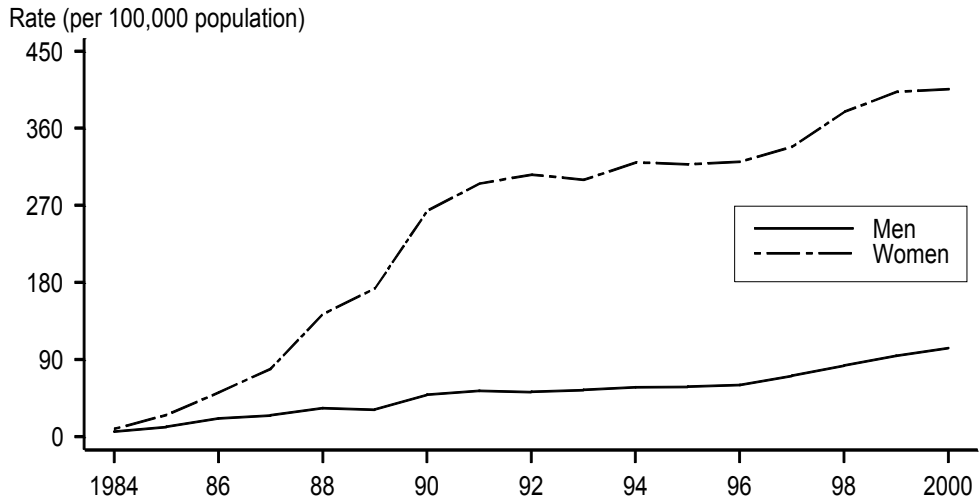
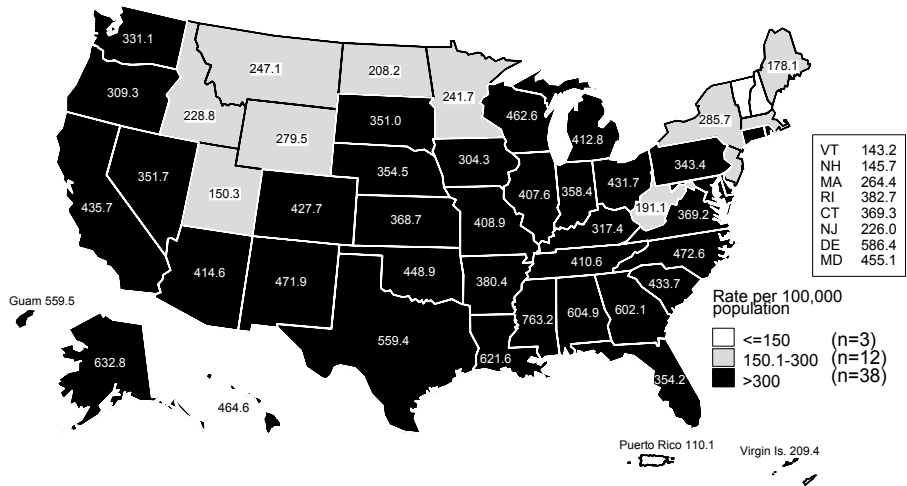
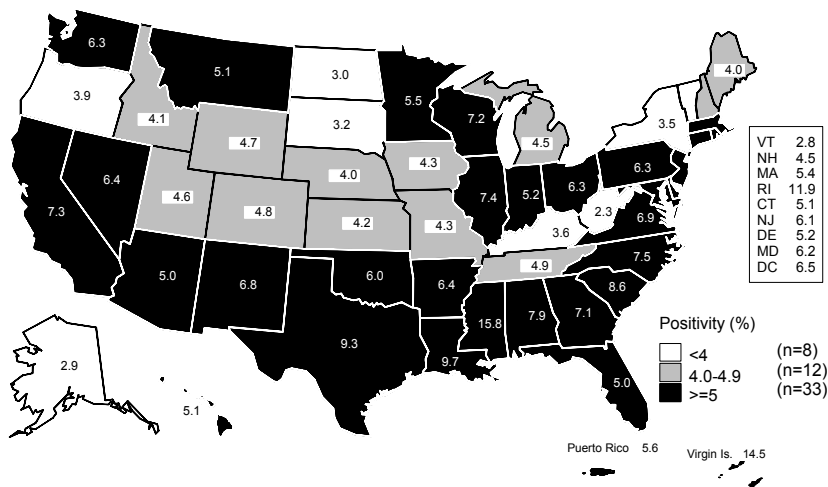


Figure 2. Chlamydia — Rates for women: United States and outlying areas, 2000



Note: The total rate of chlamydia for women in the United States and outlying areas (including Guam, Puerto Rico and Virgin Islands) was 399.8 per 100,000 population.

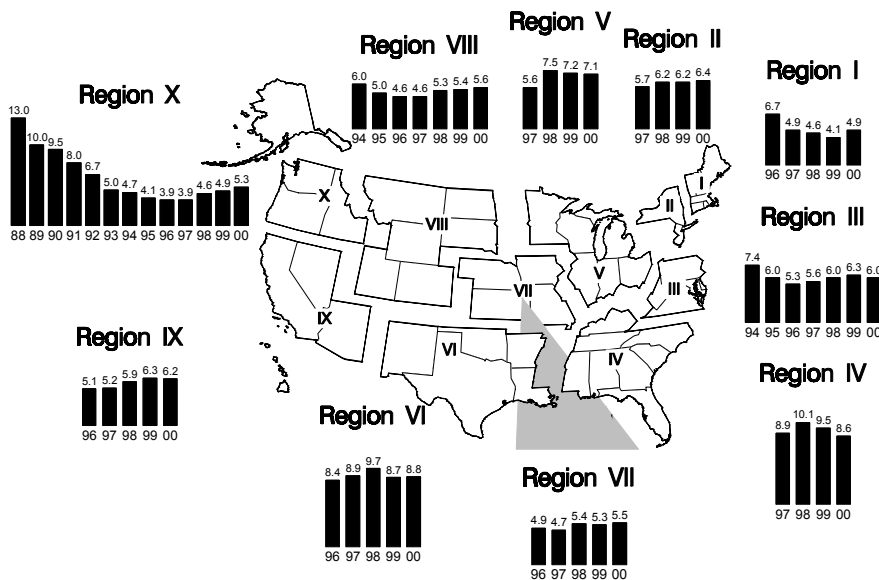
Figure 3. Chlamydia — Positivity among 15-24 year old women tested in family planning clinics by state, 2000



Note: States reported chlamydia positivity data on at least 500 women aged 15-24 years screened during 2000 except for Minnesota and Rhode Island.

SOURCE: Regional Infertility Prevention Programs; Office of Population Affairs; Local and State STD Control Programs; Centers for Disease Control and Prevention

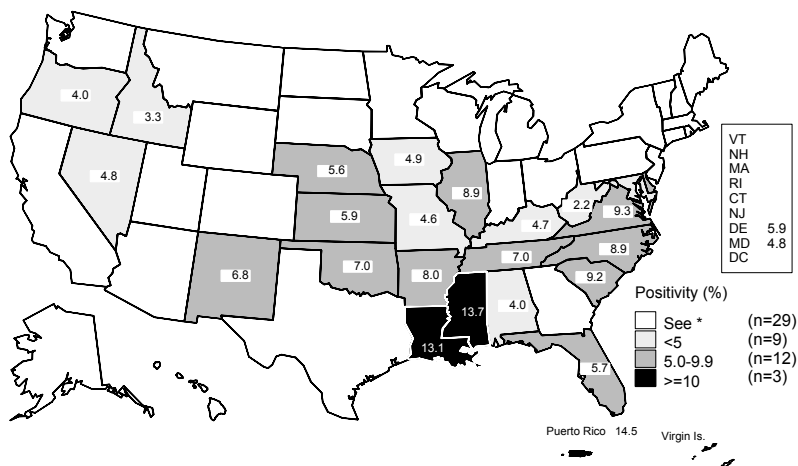
Figure 4. Chlamydia — Trends in positivity among 15-44 year old women tested in family planning clinics by HHS regions, 1988–2000



Note: Trends adjusted for changes in laboratory test method and associated increases in test sensitivity (see Appendix). No data on laboratory test method available for Region VII in 1995 and Regions IV and V in 1996. See Appendix for definition of Health and Human Services (HHS) regions.

SOURCE: Regional Infertility Prevention Programs; Office of Population Affairs; Local and State STD Control Programs; Centers for Disease Control and Prevention

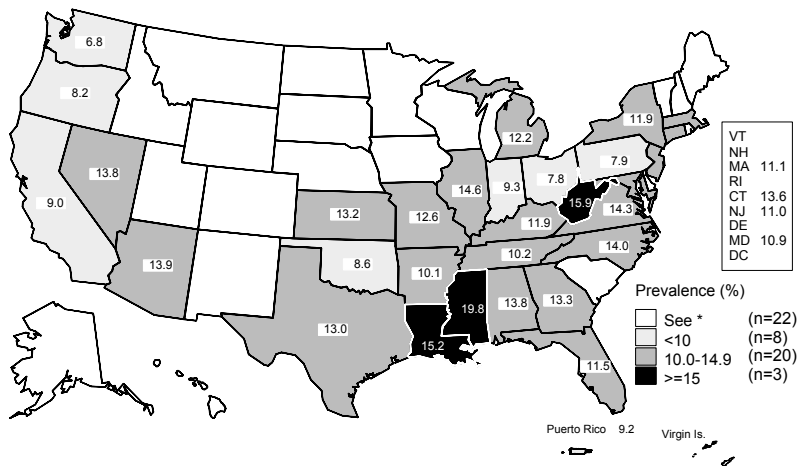
Figure 5. Chlamydia — Positivity among 15-24 year old women tested in prenatal clinics by state, 2000



*States not reporting chlamydia positivity data in prenatal clinics.
 Note: States reported chlamydia positivity data on at least 100 women aged 15-24 years during 2000.

SOURCE: Regional Infertility Prevention Programs; Office of Population Affairs; Local and State STD Control Programs; Centers for Disease Control and Prevention

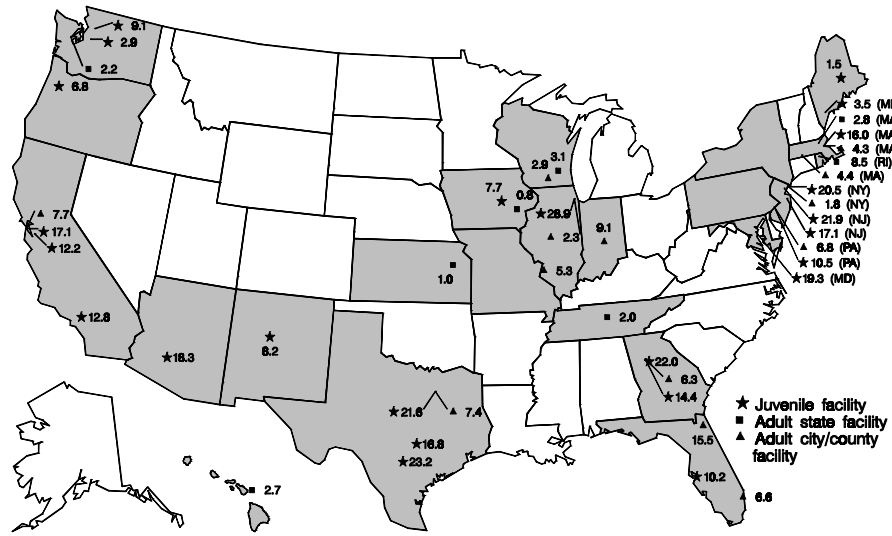
Figure 6. Chlamydia — Prevalence among 16-24 year-old women entering the National Job Training Program by state of residence, 2000



*Fewer than 100 women residing in these states and entering the National Job Training Program were screened for chlamydia in 2000.
 Note: The overall chlamydia prevalence among female students entering the National Job Training Program in 2000 was 11.2%.

SOURCE: U.S. Department of Labor

Figure 7. Chlamydia — Positivity in women entering juvenile and adult corrections facilities[†], 2000



[†]From facilities reporting >100 test results.

SOURCE: Local and State STD Control Programs; Regional Infertility Prevention Programs; Centers for Disease Control and Prevention

Figure 8. Chlamydia — Positivity among 15-30 year old women tested in Indian Health Service Clinics by IHS regions, 2000



*IHS regions not reporting chlamydia positivity data during 2000.

SOURCE: Indian Health Service