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Chlamydia Prevalence Monitoring Project
Annual Report 1999

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Chlamydia Prevalence Monitoring Project
Annual Report - 1999

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 US Department of Labor, Indian Health Service (IHS), and the US Department of the Army 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 1999 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 programs, report their chlamydia positivity data to CDC. In some of the PHS regions, federally-funded chlamydia screening supplements 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.

STD Project Areas

In 1999, 49 states and the District of Columbia reported chlamydia cases to CDC. Additionally, in 1999, 13 health departments reported STD prevalence data from persons entering jails and juvenile detention facilities as part of the Jail STD Prevalence Monitoring Project.

The US Job Corps

Since 1990, approximately 20,000 female Job Corps entrants have been screened each year for chlamydia, with all tests performed at a central laboratory using a single test type. Changes in laboratory and test type (EIA to DNA probe) occurred in mid-1997. The Job Corps, administered by the US 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.

The US Department of the Army

Since 1996, approximately 25,000 female recruits have been screened at entry into the US Army at basic training in Fort Jackson, SC.[4] Tests on urine specimens are performed at a single research laboratory. By agreement with the Department of the Army, the Johns Hopkins University Chlamydia Research Laboratory makes these data available to CDC.

Indian Health Service

In 1999, approximately 14,000 women aged 15 to 30 years were screened at 53 facilities in four 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 family planning clinics are performing universal screening of sexually active women <20 years of age, and most clinics of women <25 years of age, some selective screening is performed in 20-24 year olds and is common for 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 US Job Corps and US Army are exceptions 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 Job Corps are required to be tested. For those women entering the Army in Fort Jackson, SC, approximately 80% volunteer for testing.

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 that laboratories changed tests, missing information on the test method, variation of test sensitivity within a technology type, and no adjustment for supplemental testing to increase test sensitivity.

Chlamydia Data Reported In 1999

Case reports

In 1999, 659,441 chlamydial infections were reported to CDC from 49 states, the District of Columbia, and New York City. The reported number of cases of chlamydial infection was about two times greater than the reported cases of gonorrhea (360,076 gonorrhea cases were reported in 1999). From 1987 through 1999 the reported rate of chlamydial infection among women increased from 78.5 cases per 100,000 population to 404.5 (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 1999, state- and outlying area-specific chlamydia rates among women ranged from 57.1 per 100,000 to 838.8 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 1999, the median state-specific chlamydia test positivity among 15- to 24-year-old women screened in family planning clinics was 5.5% (range, 2.6% to 15.0%, 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 1999, 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 five of 10 PHS regions from 1998 to 1999, increased in four regions and remained the same in one (Figure 4). Although chlamydia positivity has declined in the past year in some regions, most likely due to the effectiveness of screening and treating women, continued expansion of screening programs to populations with higher disease prevalence may have contributed to the increases in positivity seen in other regions.

In 1999, the median state-specific chlamydia test positivity among 15- to 24-year-old women screened in selected prenatal clinics in 22 states was 7.2% (range, 4.5% to 14.4%, Figure 5).

Chlamydia prevalence among female Job Corps entrants

Among women entering the Job Corps in 1999, based on their place of residence before program entry, state-specific chlamydia prevalence ranged from 5.7% to 18.9% in 32 states, the District of Columbia, and Puerto Rico (Figure 6). The median state-specific chlamydia prevalence was 11.1%.

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 20 states (Figure 7). Among women entering juvenile facilities in 1999, chlamydia prevalence ranged from 4.9% to 25.2%, and among those entering adult facilities, prevalence ranged from 1.3% to 8.3%.

Chlamydia positivity among female US Army Recruits

Among women aged 17 to 34 years entering the Army in 1999, based on their state of residence before entry, state-specific chlamydia prevalence ranged from 4.1% to 19.6% (Figure 8). Among female Army recruits, overall chlamydia prevalence was 9.9%.

Chlamydia positivity among women attending Indian Health Service clinics

In 1999, chlamydia positivity among 15- to 30- year-old women screened at clinics in four IHS regions ranged from 5.4% to 10.8% (Figure 9).

Notes on State-Specific Data

Morbidity Surveillance: Reporting of Chlamydia Cases

Figure A. Chlamydia rate per 100,000 women, 1990 -1999.

Crude incidence rates (new cases/population) were calculated on an annual basis per 100,000 population. In this report, the 1999 rates for all states were calculated by dividing the number of cases reported from each area in 1999 by the estimated area-specific 1998 population. Rates for 1990 were calculated using population data from the 1990 census (*Census of Population and Housing, 1990: Summary Tape File 1 (All States)* [machine-readable file]; Washington: Bureau of the Census, 1991), which included information on area (county, state), age (5-year age groups), race (White, Black, Asian/Pacific Islander, American Indian/Alaska Native) and ethnicity (Hispanic). Rates for 1991-1999 were updated from previous issues of this report using postcensal population estimates based on the Bureau of the Census data (*US Bureau of the Census; 1991-1997 Estimates of the Population of Counties by Age, Sex and Race/Hispanic Origin: 1990 to 1997*; 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, 1990-1999; Table 1. Chlamydia positivity among women 15 to 44 years of age by testing site, 1999; Figure C. Chlamydia positivity by age group among women attending family planning clinics, 1999.

Chlamydia test positivity data are presented from those states reporting results on 500 or more women screened during 1999. 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, 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 US Job Corps 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. Chlamydia testing data were published with permission from the Regional Infertility Prevention Programs, state STD Control Programs, IHS, and US Job Corps.

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[9]Mertz 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.

[10]Dicker 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, Sharon Clanton, Linda Webster Dicker, Melinda Flock, LaZetta Grier, Sharon Hixon, Kathleen Hutchins, William Levine, Kristen Mertz, Debra Mosure, Ray Ransom, and Emmett Swint.

Figure 1. Chlamydia — Rates by gender: United States, 1984–1999

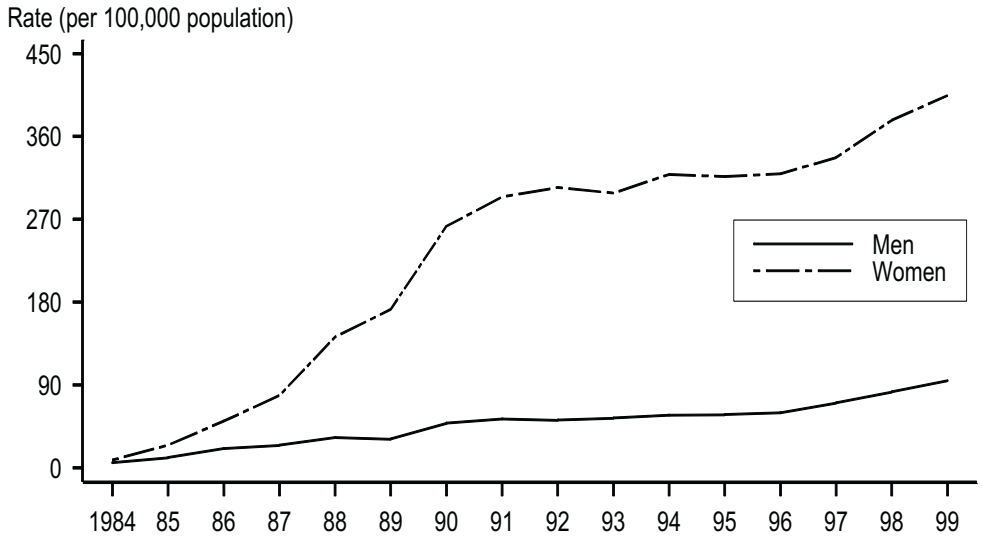
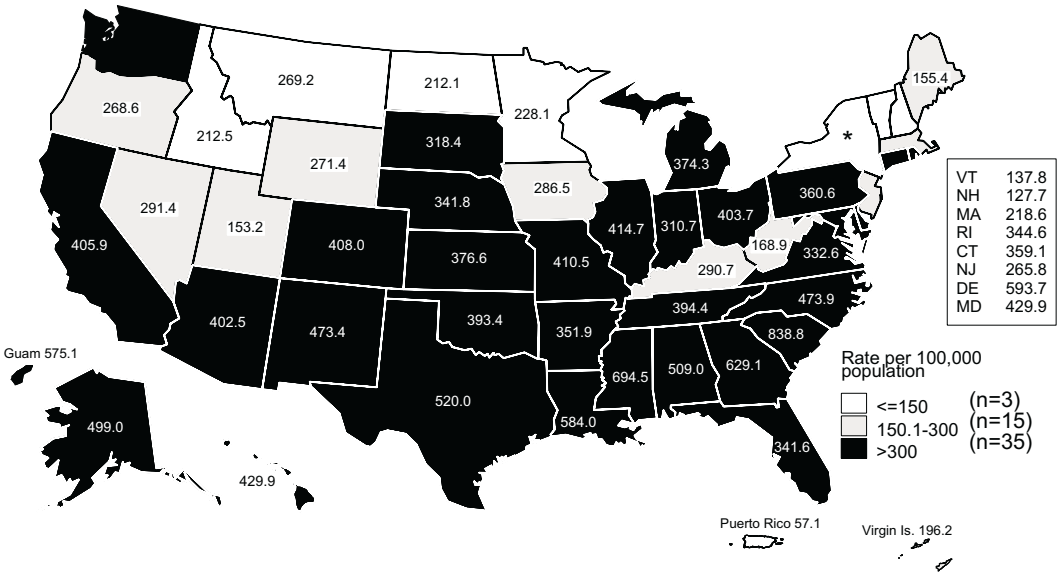


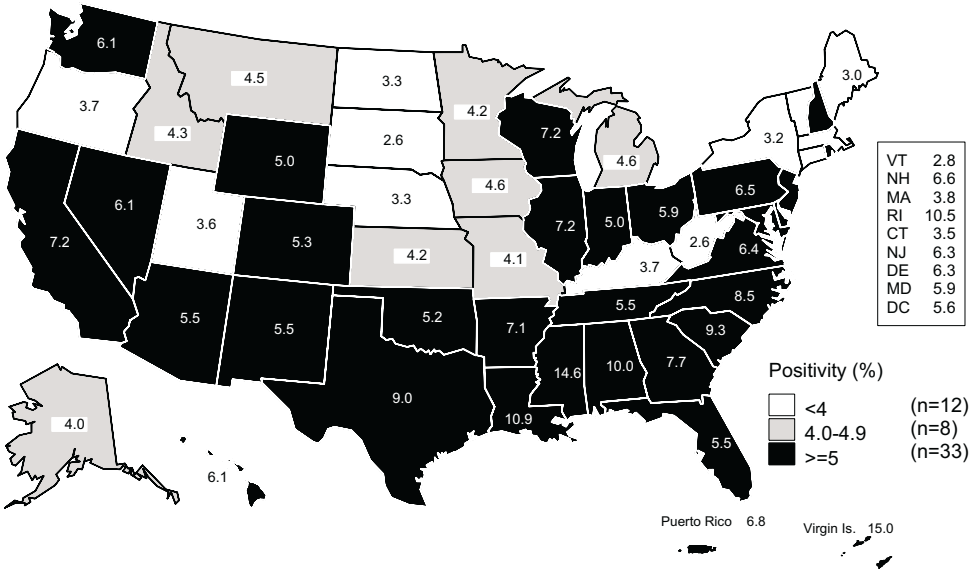
Figure 2. Chlamydia — Rates for women by state: United States and outlying areas, 1999



*The New York City rate was 607.8 per 100,000 population. No cases were reported outside of New York City.

Note: The total rate of chlamydia for women in the United States and outlying areas (including Guam, Puerto Rico and Virgin Islands) was 399.4 per 100,000 population.

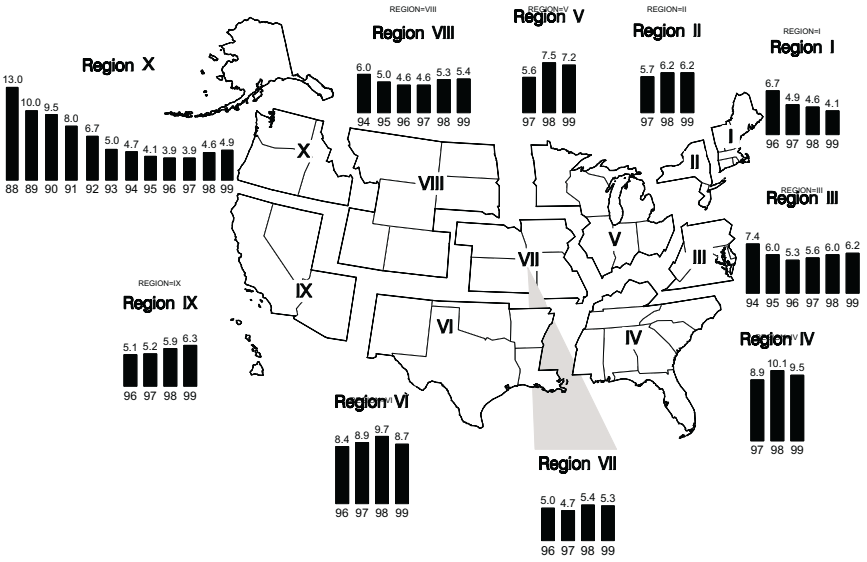
Figure 3. Chlamydia — Positivity among 15-24 year old women tested in family planning clinics by state, 1999



Note: States reported chlamydia positivity data on at least 500 women aged 15-24 years screened during 1999 except for Rhode Island; for Puerto Rico, chlamydia positivity data were reported for August-December only.

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

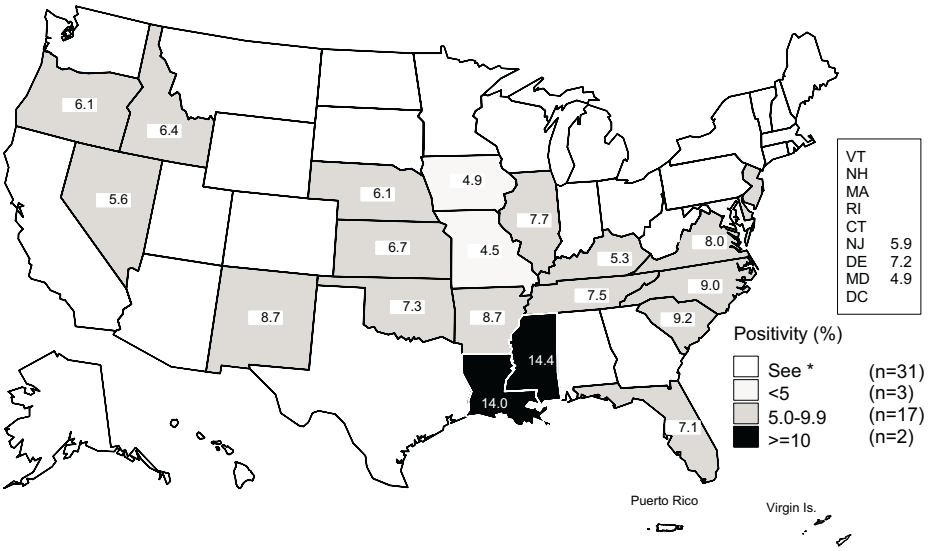
Figure 4. Chlamydia — Trends in positivity among 15-44 year old women tested in family planning clinics by HHS regions, 1988–1999



Note: Trends adjusted for changes in laboratory test method and associated increases in test sensitivity. No data on laboratory test method available for Region VII in 1995 and Regions IV and V in 1996.

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, 1999

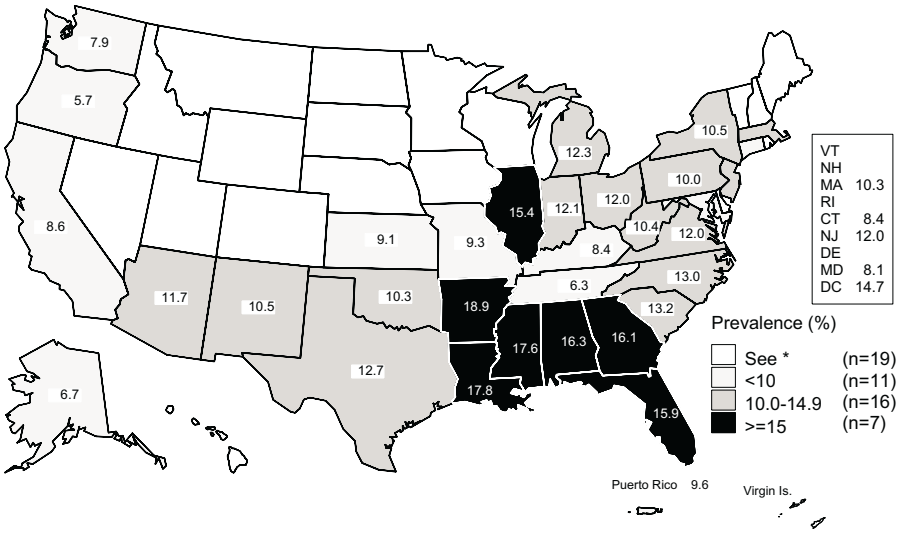


*States not reporting chlamydia positivity data in prenatal clinics.

Note: States reported chlamydia positivity data on at least 100 women aged 15-24 years during 1999.

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 US Job Corps by state of residence, 1999

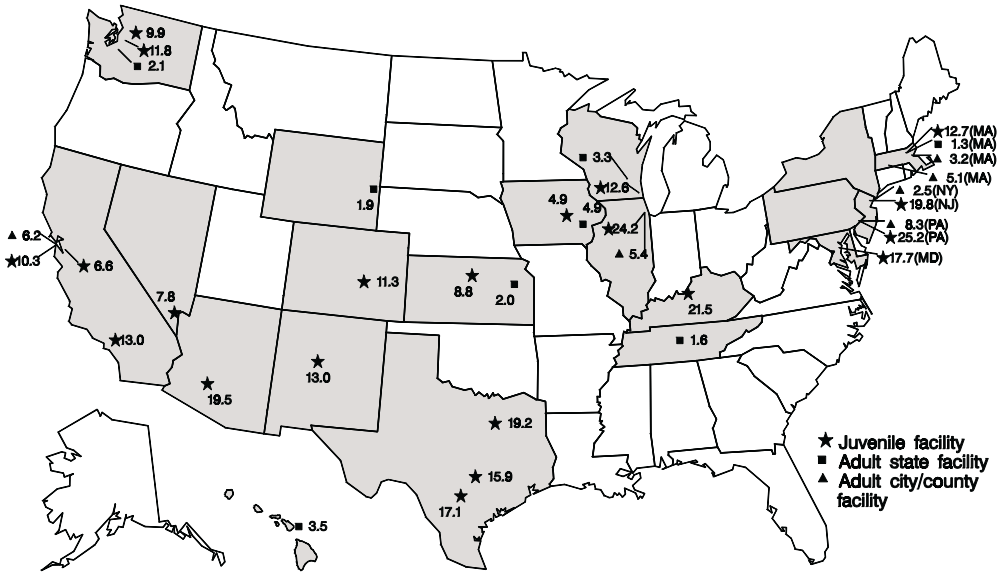


*Fewer than 100 women residing in these states and entering the US Job Corps were screened for chlamydia in 1999.

Note: The overall chlamydia prevalence among female students entering the US Job Corps in 1999 was 11.5%.

SOURCE: US Department of Labor

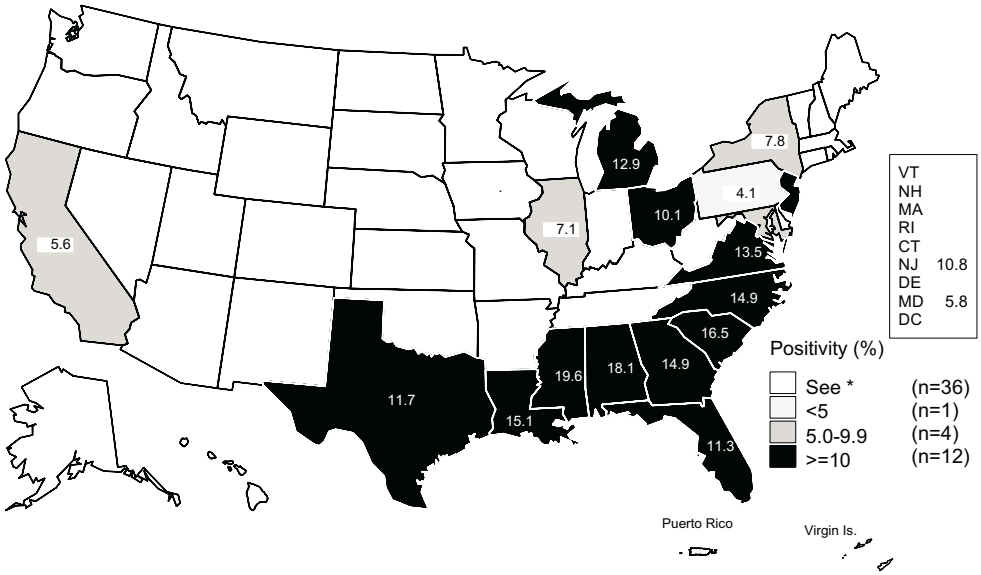
Figure 7. Chlamydia — Positivity in women entering juvenile and adult corrections facilities†, 1999



†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 17-34 year old women entering the US Army by state of residence, 1999

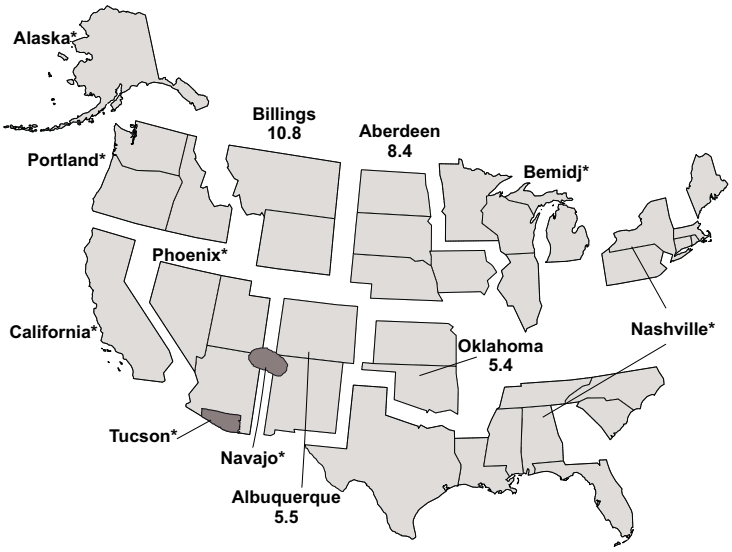


*Fewer than 100 women residing in these states and entering the US Army were screened for chlamydia in 1999.

Note: Screening female recruits from January - July only. Overall positivity was 9.9%.

SOURCE: Johns Hopkins University Chlamydia Research Laboratory (funding initiative: Office of Defense Women's Health Research)

Figure 9. Chlamydia — Positivity among 15-30 year old women tested in Indian Health Service Clinics by IHS regions, 1999



*IHS regions not reporting chlamydia positivity data during 1999.

Note: Albuquerque Region - chlamydia positivity data reported for April-December only.

SOURCE: Indian Health Service