

Chlamydia among women aged 15-24 years attending New Mexico Infertility Prevention Project family planning clinics, 1997 – 2007: Changing trends over time

Background:

Chlamydial (CT) infection is the most common sexually transmitted bacterial infection in the U.S., with an estimated 3 million new cases annually. The Center for Disease Control and Prevention (CDC), in collaboration with the Office of Population Affairs of the Department of Health and Human Services, supports the Infertility Prevention Project (IPP) that funds CT screening and treatment services for low-income, sexually-active women. This program has shown that routine screening of women can reduce CT prevalence in women.ⁱ Since 1995 the Region VI IPP has funded CT screening and treatment services for women attending New Mexico family planning (NM FP) clinics. This project has provided major support to CT screening tests in public health offices as well as primary care FP clinics in NM statewide.

In 2000 the Health Plan Employer Data and Information (HEDIS) measure included the proportion of sexually active females between the ages of 15 and 25 who were screened for CT infection annually as one of the indicators. The institution of this policy has improved CT screening rates both in private and public sectors.ⁱⁱ In 2001 the U.S. Preventive Services Task Force (USPSTF) concluded that good evidence supports screening for CT infection among asymptomatic women at increased risk for infection, including women at risk because of young age, and strongly recommended that this group be screened nationwide.ⁱⁱⁱ The NM FP Program Protocol has been using age, specifically women younger than 25 years, as a screening guideline since 2000.

In 2001 the NM Scientific Lab Division (SLD) offered a urine-based probe hybridization test (Gen-Probe PACE 2 assay) instead of urethral or cervical tests only. In 2002 CDC recommended that all women with CT infections be re-screened three to four months after treatment is completed, in addition to its advisement to annually screen sexually active adolescent (19 years old and under) and young adult (20 to 24 years old) women, even if symptoms are not present.^{iv} CDC also recommended that nucleic acid amplification tests (NAATs) are used for screening both women and men.^v

In 2003 the NM FP Program revised its protocol to expand screening to women 25 years of age and younger as well as adopting the 2002 CDC re-screening recommendation.

In 2004 NM SLD switched from probe hybridization test (Gen-Probe PACE 2 assay) to NAAT (APTIMA COMBO 2® Assay). Due to the cost of the test and the funding limitations the NM FP Program has been closely monitoring the clinic sites' adherence to the Program's protocol.

In 2007 the USPSTF published the evidence review with an update to its recommendations. The review found that the epidemiology of CT infection in the U.S. has not changed in significant ways in recent years. Age remains the strongest predictor of risk in both men and women. Among women, the highest rates of infection are reported among those 15 to 19 years of age, followed by those 20 to 24 years of age.^{vi}

This study reports the trends of CT positivity rates among the FP-targeted group, women younger than 25 years of age, as an outcome of the persistent implementation and monitoring of the screening protocol and utilization of sensitive screening tests.

Objective:

- 1) Assess CT trends among women aged 15-24 years attending FP clinics, 1997-2007.
- 2) Identify factors that might influence CT trends.

Women age 15-24 were selected because this group is an IPP priority population.

Method:

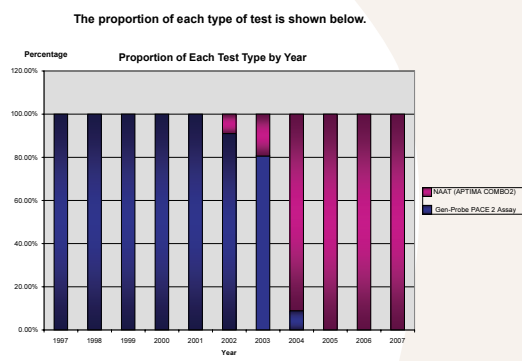
We analyzed data from 80,838 CT tests from women aged 15 to 24 years screened in NM FP clinics participating in the Region VI IPP from January 1997 through June 2007 (~7,700 tests/yr). The number of FP clinics per year varied, but there were approximately 100 sites per year. Women aged 24 years and younger were routinely screened for chlamydial infection at least annually as recommended by the CDC and the USPSTF. This population reflects the closest approximation we have to universal testing of women seeking routine reproductive health care.

A common data collection form was used at all NM FP clinics in the Region VI IPP. Core measures included: CT test result, test type, and client demographics (sex, age, race, and Hispanic ethnicity).

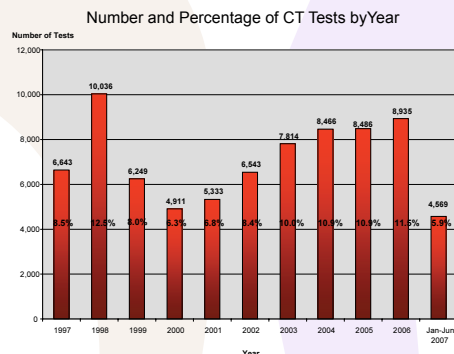
Observed CT positivity was calculated by dividing the number of positive tests by the total number of tests that were either positive or negative. (Unsatisfactory or indeterminate results were excluded.) Contingency tables were generated for demographic measures (data not shown here), specimen date (year), and CT test result.

We used the sensitivity and specificity of each laboratory test method to calculate an adjusted positivity [test specific adjusted positivity = (test-specific observed positivity + test specificity - 1) / (test sensitivity + test specificity - 1)]. We calculated the overall adjusted positivity as a weighted sum of the adjusted positivities for each test type. The sensitivity and specificity estimates used for the adjustment were NAATs (sensitivity 0.855, specificity 0.997) and other non-NAATs including Gen-Probe Pace 2 (sensitivity 0.619, specificity 0.997).^{vii,viii,ix}

Result:

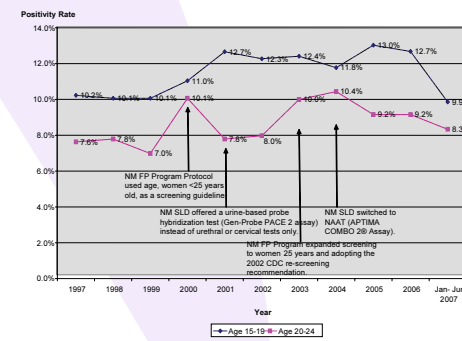


Annual CT testing volume among FP female clients aged 15-24 years increased from about 6,000 tests/year, 1997-2002, to over 9,000/year, 2006 and 2007(projected). The numbers and proportion of tests included in this analysis by year are shown below.



Between 1997 and 2007, CT+ among women ages 15-19 decreased (10.2% to 9.9%); CT+ increased for women ages 20-24 (7.6% to 8.3%). Also, between January 2005 and June 2007, CT+ decreased in women aged 15-19 years (13.0% to 9.9%) and in women aged 20-24 years (9.2% to 8.3%).

Adjusted CT Positivity Rate among New Mexico Family Planning Clients by Age Group



Between 2000 and 2005, there were several changes that might have contributed to increasing CT prevalence:

- 1) In 2000, the NM FP Program Protocol used age, women <25 years old, as a screening guideline.
- 2) In 2001, the NM SLD offered a urine-based probe hybridization test (Gen-Probe PACE 2 assay) instead of urethral or cervical tests only.
- 3) In 2003, the NM FP Program adopted the 2002 CDC re-screening recommendation.
- 4) In 2004, the NM SLD switched to NAAT (APTIMA COMBO 2® Assay).

Conclusion:

Annual NM CT testing volume in NM FP women aged 15-24 increased from 1997 to 2007. Over 11 years, CT+ was stable, until the advent of urine test and NAATs when CT+ increased. However, in the past two years CT+ has decreased in the IPP target population.

Limitations:

Results were not adjusted for: 1) changes in clinic participation over time; 2) screening coverage; or 3) other individual-level risk factors (e.g. sexual behaviors, clinical signs, and prior CT infections). We calculated positivity based on testing volume rather than prevalence. The latter issue may not be a significant factor in FP clinics where most women seek care on an annual basis. However, to the extent that a varying proportion of young women over time have multiple visits per year, positivity may not reflect prevalence in this service population.

IPP is a program innovation integrated into routine service delivery at FP sites. Data were collected by many individuals working in various roles over time. The State's data management system is used for routine program monitoring rather than research purposes. Errors in data collection, entry and management may affect our findings. Finally, CT positivity reflects infection levels for this group of women seeking health care rather than an estimate of community prevalence.

ⁱ Center for Disease Control and Prevention.(n.d.). Infertility prevention project: Overview. Retrieved February 8, 2008 from <http://www.cdc.gov/std/infertility/ipp.htm>.

ⁱⁱ Douglas, J. M. Jr., Berman, S., & Walsh, C. A word about Chlamydia screening in managed care organizations in the prevention of sexually transmitted diseases. Retrieved February 8, 2008 from http://www.ncoa.org/Portals/0/Publications/Resource%20Library/Improving_Chlamydia_Screening_08.pdf.

ⁱⁱⁱ U.S. Preventive Services Task Force. (2001). Screening for chlamydial infection: recommendations and rationale. *American Journal of Preventive Medicine*, 20(suppl 3), 90-4.

^{iv} Center for Disease Control and Prevention. (2002). New CDC Treatment Guidelines Critical to Preventing Health Consequences of Sexually Transmitted Diseases. Retrieved February 8, 2008 from <http://www.cdc.gov/od/oc/media/pressrel/fs020509.htm>.

^v Nelson, H. D. & Helfand, M. (2001). Screening for chlamydial infection. *American Journal of Preventive Medicine*, 20, 95-107.

^{vi} Meyers, D. S., Halvorson, H., & Luckhaupt, S. (2007). Screening for chlamydial infection: An evidence update for the U.S. Preventive Services Task Force. *Annals of Internal Medicine*, 147, 135-142.

^{vii} Rogan, W. J. & Gladen, B. (1978). Estimating prevalence from the results of a screening test. *American Journal of Epidemiology*, 107, 71-76.

^{viii} Newhall, W. J., DeLisle, S., Fine, D., et al. (1999). Head-to-head evaluation of five chlamydia tests relative to a quality-assured culture standard. *Journal of Clinical Microbiology*, 37, 681-685.

^{ix} Black, C. M., Marrazzo, J., Johnson, R. E., et al. (2002). Head-to-head multicenter comparison of DNA probe and nucleic acid amplification tests for Chlamydia trachomatis infection in women performed with an improved reference standard. *Journal of Clinical Microbiology*, 40, 3757-3763.