# Reduction in Unnecessary Chlamydia Screening Among Older Women at Title X-Funded Family Planning Sites Following a Structural Intervention—San Francisco, 2009

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**Abstract:** A structural intervention designed to reduce unnecessary chlamydia screening among older women resulted in a 24.4% reduction in test volume and an associated cost savings of nearly $40,000.

In 2008, over 1.2 million cases of *Chlamydia trachomatis* (chlamydia) were reported to the Centers for Disease Control and Prevention (CDC),[1] making it the most common reportable condition in the United States. The CDC recommend that females under the age of 26 years should be screened annually for chlamydia[2] and, through the Infertility Prevention Program, support screening of young females.[3] In 2003, the San Francisco Department of Public Health created local recommendations for female chlamydia screening on the basis of data collected over a decade in San Francisco and recommended that females under the age of 26 years be screened annually, and females aged 26 years and more be screened only if pregnant or having an IUD insertion. The San Francisco Department of Public Health screening criteria can be found at http://www.sfcityclinic.org/providers/SFDPH_STDScreeningRecs2009v2.pdf.

San Francisco STD Prevention and Control Services (SFSTD) partners with clinics and other community sites to offer chlamydia and gonorrhea screening using nucleic acid amplification tests in accordance with local recommendations. The San Francisco Department of Public Health runs 8 primary care clinics that provide Title X-funded family planning services, and SFSTD supports chlamydia testing at these 8 clinics. Although SFSTD staff have provided technical assistance to funded sites in an effort to reduce screening among older females, a majority of chlamydia tests have been conducted among women aged 26 years or older, against local recommendations. In 2008, the San Francisco Public Health Laboratory processed over 2500 female chlamydia tests from those 8 clinics; nearly 65% of tests were among females ≥26 years of age, with a resultant positivity well below the commonly accepted cost-effective threshold of 3%.[4,5] This high proportion of tests among older females has been consistent in these clinics for nearly a decade.

As public health resources available for sexually transmitted disease (STD) control and reproductive health services have become increasingly scarce,[6] it is critical to efficiently target resources to the populations most in need of those services. To more efficiently use available laboratory resources and materials, we developed, implemented, and evaluated a structural intervention to reduce potential overscreening for chlamydia among females ≥26 years of age.

In an effort to reduce overscreening, in 2009, the standardized laboratory requisition form for chlamydia tests at SFSTD-supported sites was changed to only include indications for chlamydia testing that were in accordance with local recommendations. For females, valid indicators for chlamydia diagnostic testing included the following: symptoms, contact to a partner with chlamydia, and 3-month rescreening for females previously diagnosed with chlamydia. Valid indications for chlamydia screening among women were limited to intrauterine device insertion, pregnancy, or <26 years of age. Beginning January 1, 2009, the Public Health Laboratory did not test specimens if requisition forms for chlamydia tests submitted by SFSTD-supported sites did not indicate a valid reason for testing. Before 2009, reason for testing included an "other" category; other was not available as an option on the new laboratory requisition form. Before 2009, no reasons for testing were electronically captured by the laboratory system. In October 2008, all SFSTD-supported sites were notified of the intended changes in screening protocols and reminded that, beginning in January 2009, specimens submitted to the Public Health Laboratory without a valid test indication would not be processed.

To evaluate the impact of this intervention, we compared the number of female chlamydia tests and chlamydia positivity for each of the 8 Title X-funded clinics, stratified by age <26 or ≥26 years of age, for 2008 (preintervention) and 2009 (intervention). The primary outcomes of this evaluation were the change in the proportion of chlamydia tests ordered among females ≥26 years of age and the change in the number of positive chlamydia infections identified and positivity among females ≥26 years of age. Using the Center for Medicare and Medicaid reimbursement of $100.54 for dual chlamydia and gonorrhea nucleic acid amplification testing,[7] we also estimated the programmatic cost savings associated with the intervention and compared the cost per identified chlamydia case in 2008 with the cost per identified chlamydia case in 2009.

In 2008, 2506 chlamydia tests were submitted to the Public Health Laboratory by the 8 clinics, 64.4% of which were among females aged ≥26 years (Table 1). The positivity was

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**TABLE 1.** Change in Female Chlamydia Test Volume and Positivity in 8 Title X-Funded Family Planning Clinics Before and After an Intervention to Reduce Over-Screening Among Females Aged 26 or Older, San Francisco 2008–2009

| | 2008 (Preintervention) | | | | 2009 (Intervention) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Females <26 | | Females 26+ | | Females <26 | | Females 26+ | | | |
| Clinic | No. Tests | % Positive | No. Tests | % Positive | No. Tests | % Positive | No. Tests | % Positive | % Change (26+ Testing Volume) | % Change (26+ Positivity) |
| A | 39 | 7.7% | 251 | 4.8% | 50 | 0% | 122 | 5.0% | −51.4% | −4.2% (−6 cases) |
| B | 32 | 15.6% | 320 | 0.6% | 39 | 15.4% | 253 | 3.6% | −20.9% | 500% (+7 cases) |
| C | 212 | 5.2% | 265 | 3.4% | 202 | 4.5% | 180 | 2.8% | −32.1% | −17.6% (−4 case) |
| D | 264 | 6.1% | 311 | 2.3% | 218 | 12.0% | 289 | 2.4% | −7.1% | 4.3% (0 cases) |
| E | 128 | 7.0% | 160 | 2.5% | 165 | 7.3% | 123 | 0.8% | −23.1% | −84.0% (−3 cases) |
| F | 39 | 5.1% | 53 | 0% | 51 | 3.9% | 46 | 2.2% | −13.2% | 220% (+1 cases) |
| G | 162 | 3.1% | 156 | 0% | 183 | 2.2% | 129 | 0% | −17.3% | 0% |
| H | 17 | 5.9% | 97 | 3.1% | 14 | 7.1% | 78 | 1.3% | −19.6% | −58.1% (−2 case) |
| Total | 893 | 5.8% | 1,613 | 2.3% | 922 | 6.5% | 1,220 | 2.4% | −24.4% | 4.3% (−7 cases) |
| Costs | Testing cost $89,782 | $ per case $1744 | Testing cost $162,171 | $ per case $4383 | Testing cost $92,698 | $ per case $1545 | Testing cost $122,659 | $ per case $4230 | Total cost savings in 2009 $39,512 | |

5.8% for females <26 years and 2.3% for females ≥26 years in 2008. In 2009, 2242 female chlamydia tests were submitted by the 8 clinics, of which 57.0% were among females aged ≥26 years. During the intervention period, chlamydia tests among females ≥26 years decreased by 24.4% overall. Each of the 8 clinics decreased their testing volume of females aged ≥26 years, with a range of 7.1% to 51.4%.

The 24.4% reduction in chlamydia tests among females aged ≥26 years resulted in a programmatic cost savings of $39,512. In 2008, the cost per identified chlamydia case in females aged ≥26 years was $4383; in 2009, this declined by 3.5% to $4230. In both 2008 and 2009, the cost per identified chlamydia case in females aged ≥26 years was over twice the cost per identified chlamydia case in females <26 years.

As public health resources have become more constrained, it is increasingly important to focus those resources to maximize impact. In San Francisco, a disproportionate amount of chlamydia tests were being conducted among low-risk females ≥26 years, against local recommendations. Although some older women were identified with chlamydia, the overall positivity of chlamydia among females ≥26 years in 2008 was less than the 3% threshold. Despite intensive efforts to work with our partners to reduce overscreening in this population (e.g., site visits, trainings, technical assistance, phone calls, data feedback), there were no major changes in screening patterns. Working with the local Public Health Laboratory, we were able to implement a sustainable, structural intervention to reduce overscreening. Our evaluation suggests that the intervention saved the SFSTD program considerable costs that can be used to expand screening among young women. We also found that reductions in chlamydia screening among females ≥26 years did not result in a substantial decline in cases identified in this older population, and actually increased chlamydia positivity in this group.

Chlamydia screening has been shown to be cost-effective when restricted to adolescent and young adult females.[4,5,8] The data presented in the present study support this. In both the preintervention and intervention periods, the cost per case of chlamydia identified was nearly 3 times lower in females <26 years compared with females ≥26 years. In California, contraceptive and reproductive health services for low-income women are supported through the Family Pact (FPACT) program. In fiscal year 2007–2008, FPACT supported chlamydia testing in 920,741 females, of which 47.6% (438,616) were 25 years of age or older.[9] The intervention described in this study, if applied to the FPACT data, would have resulted in 43,860 fewer chlamydia tests statewide for an estimated cost savings of $4,473,720.

Since initiating the structural changes described, SFSTD staff have provided technical assistance and seminars on the changes for participating clinical sites. Although some clinicians were initially skeptical of the changes, we have identified few negative ramifications of the intervention. No clinic has refused to continue participating in the STD Screening Program, and strong collaborative relationships continue with all the participating clinics. Additionally, data on the reductions in test volume and cost savings have been presented to staff from participating clinics. Clinic staff were appreciative to see the results of the intervention and the data allowed them to better communicate to their patients the reasons that some of them may not be tested for chlamydia. Only 22 specimens from female patients at the 8 clinics were rejected for not having a reason for testing listed, of which 77.3% were from females aged ≥26 years.

In more primary care clinical settings, the time with each patients has been decreasing, and the number of prevention assessments (depression, smoking, seat belts, etc.) growing, making institution of selective screening criteria for chlamydia challenging. In many instances, it is less work for the clinician to just test everyone, rather than assess eligibility for chlamydia screening. Additionally, a comprehensive sexual history is often not conducted.[10,11] We considered these factors in the development of our local screening recommendations, and as a result, intentionally based them on easily identifiable characteristics (age, pregnancy, IUD) and not on often poorly measured risk behaviors (numbers of partners, concurrency).

A number of limitations of our analysis deserve discussion. First, our analysis assumed that chlamydia test volume and positivity were constant over the 2-year period, and that any changes were attributable to the structural intervention. Historical data from these clinics suggest fairly constant testing volumes and female chlamydia positivities.[12] Furthermore, local chlamydia prevalence in San Francisco has been stable since 2004.[12] Additionally, our analysis is ecological in nature and we cannot definitively determine that our intervention "caused" the reduction in testing volume. Finally, San Francisco is a unique urban environment, with relatively low chlamydia rate (530.4 per 100,000 in 2008) and as a result may not be comparable with other local areas.

Although the results of our analysis might not be generalizable to other areas, the framework in which we approached this problem has broad relevance. Despite CDC and local recommendations for female adolescent chlamydia screening, screening coverage in this younger group is poor.[13] Screening coverage for females <26 years is less than 100% in the 8 Title X-funded clinics in San Francisco (CFHC data). This evaluation is the first step in a programmatic plan to work with SFSTD-supported sites to not only continue to reduce overscreening of older women, but also to develop interventions to improve screening coverage in adolescent and young adult females.

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