Sentinel Surveillance of Rectal Chlamydia and Gonorrhea Among Males—San Francisco, 2005–2008

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Objectives: Estimates of STD burden that are based on case reports can be biased by changes in testing. To assess trends in rectal chlamydia and gonorrhea among males in San Francisco, we examined test frequency and positivity at sentinel sites across a 4-year period.

Methods: The San Francisco Department of Public Health provides rectal chlamydia and gonorrhea testing and treatment at the municipal STD clinic, a gay men's health clinic, and 2 HIV-care clinics in San Francisco. We reviewed the number of tests conducted among males and measured trends in positivity at each site.

Results: While the number of tests for rectal chlamydia and gonorrhea increased at all sites from 2005 through 2008, rectal chlamydia positivity remained stable at each site across the period, and rectal gonorrhea positivity significantly declined at the STD clinic (10.1% to 6.5%, $P < 0.0001$).

Conclusions: An increase in reports of rectal chlamydia cases among males might have resulted from improved case detection rather than a true increase in transmission. Sentinel surveillance can provide a more comprehensive understanding of STD testing and trends than passive case reporting alone.

Rectal *Chlamydia trachomatis* (chlamydia) and *Neisseria gonorrhoeae* (gonorrhea) infections increase the risk of human immunodeficiency virus (HIV) acquisition and transmission[1,2]; these infections are also markers of sexual behaviors associated with HIV and other sexually transmitted diseases (STDs). Gonococcal proctitis has been identified as an independent risk factor for HIV acquisition,[1] and men who have sex with men (MSM) with newly diagnosed HIV infection are over 3 times more likely to be infected with rectal chlamydia or gonorrhea than HIV-uninfected MSM.[3]

Among MSM with clinical proctitis, chlamydia and gonorrhea are the most frequently identified pathogens in the rectum.[4] However, although patients with proctitis are likely to seek medical care, approximately 85% of rectal gonorrhea and chlamydia infections are asymptomatic, and many patients who are infected rectally are not simultaneously infected at other anatomical sites.[5] The Centers for Disease Control and Prevention (CDC) recommend at least annual screening for chlamydia and gonorrhea in MSM at the urethral, pharyngeal, or rectal site based on recent exposure.[6] The San Francisco Department of Public Health, which initiated rectal screening for gonorrhea and chlamydia among MSM in 2003, recommends that sexually active MSM be routinely tested for gonorrhea and chlamydia infections at the rectal and pharyngeal sites every 3 to 6 months, and at the urethral site only when symptomatic or a recent contact to a known case.[7]

Reported cases of rectal gonorrhea among males remained stable in San Francisco from 2005 (N = 467) through 2008 (N = 466), but cases of rectal chlamydia increased 38% in the same period (N = 483 in 2005 to N = 665 in 2008) (San Francisco Department of Public Health, preliminary data).[8] Nucleic acid amplification testing for rectal chlamydia and gonorrhea became more widely available in San Francisco during those years, which likely contributed to increased case-finding. Sentinel surveillance of screening sites where positivity data are available has been used to provide estimates of STD burden and trends that are less biased by changes in testing and reporting practices.[9,10] To assess trends in rectal chlamydia and gonorrhea among males in San Francisco, we examined test frequency and positivity at sentinel sites serving MSM populations across a 4-year period.

The San Francisco Department of Public Health provides rectal chlamydia and gonorrhea testing and treatment at the municipal STD clinic, a gay men's health clinic, and 2 HIV-care clinics in San Francisco. We reviewed all tests conducted among male patients at these clinical settings from 2005 through 2008. All specimens from these sites were routinely tested using GenProbe APTIMA Combo2 (San Diego, CA) at the San Francisco Department of Public Health, Public Health Laboratory, which has previously verified the performance of this test for chlamydia and gonorrhea detection in rectal specimens.[11]

To assess test frequency and positivity, we examined the number of rectal chlamydia and gonorrhea tests among male patients and the proportion testing positive for each pathogen at each sentinel site by year. To determine whether positivity for rectal chlamydia and gonorrhea increased or decreased across the 4 years, we used 2-sided Cochran-Armitage tests for trend ($P < 0.05$). Statistical analyses were conducted in SAS 9.1 (SAS Institute, Cary, NC).

These were deidentified surveillance data used for public-health improvement; thus, this study was considered exempt from human-subjects considerations in accordance with the Code of Federal Regulations, Title 45.

Tests and positivity for rectal chlamydia and gonorrhea among male patients at sentinel sites are presented in Figure 1. For

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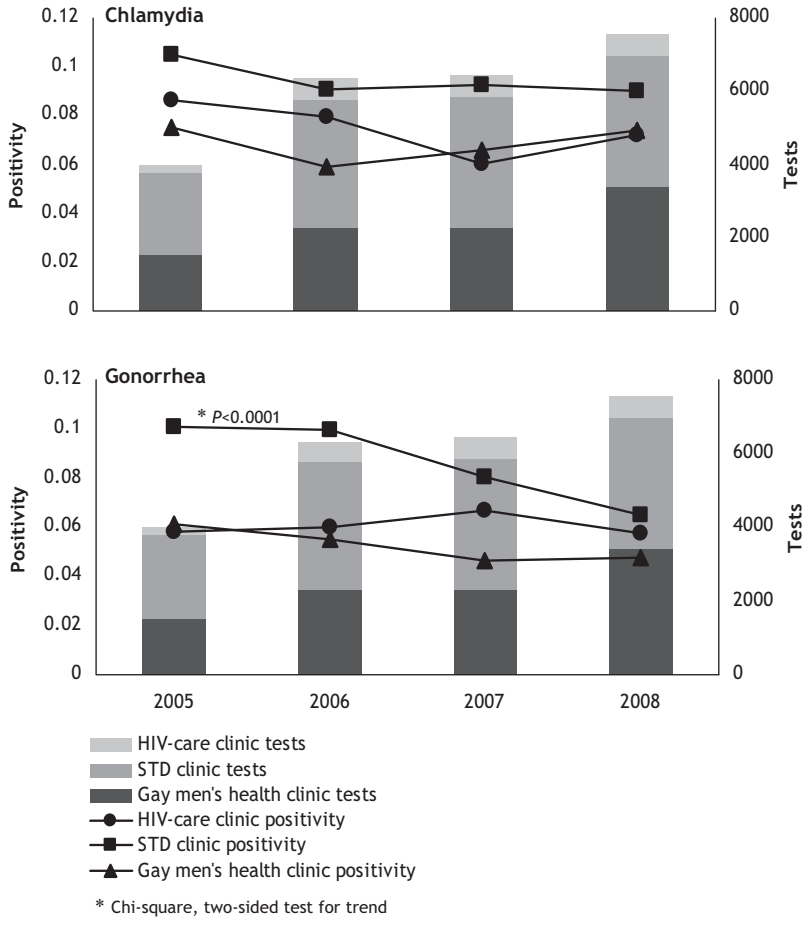

Figure 1. Rectal chlamydia and gonorrhea tests and positivity among males at sentinel surveillance sites, San Francisco, 2005–2008.

rectal chlamydia, the number of tests increased at every site from 2005 through 2008, with a 166% increase in tests at the HIV-care clinics (N, 208 to 553), a 58% increase in tests at the STD clinic (N, 2251 to 3554), and a 123% increase in tests at the gay men's health clinic (N, 1533 to 3418). The positivity for rectal chlamydia ranged from 5.9% (at the gay men's health clinic in 2006) to 10.5% (at the STD clinic in 2005). Rectal chlamydia positivity remained stable at every site, with no statistically significant changes across the period.

For rectal gonorrhea, the number of tests increased similarly at every site from 2005 through 2008, with a 167% increase in tests at the HIV-care clinics (N, 207 to 554), a 57% increase in tests at the STD clinic (N, 2258 to 3554), and a 123% increase in tests at the gay men's health clinic (N, 1533 to 3418). The positivity for rectal gonorrhea ranged from 4.7% (at the gay men's health clinic in 2007) to 10.1% (at the STD clinic in 2005). Positivity for rectal gonorrhea significantly declined from 2005 through 2008 at the STD clinic (10.1% to 6.5%, $P < 0.0001$). Rectal gonorrhea positivity remained stable at the gay men's health clinic and HIV-care clinics, with no statistically significant changes across the period at these sites.

Sentinel surveillance of tests and positivity at three clinical settings serving MSM indicated that rectal gonorrhea positivity significantly decreased among male patients visiting the municipal STD clinic from 2005 through 2008, while rectal chlamydia and gonorrhea positivity remained stable among males tested at the gay men's health clinic and two HIV-care clinics during the period. The number of rectal chlamydia and gonorrhea tests increased steadily at all sites across the period. These findings suggest that the concurrent 38% increase in reports of rectal chlamydia cases among males in San Francisco resulted from increased screening that improved case detection in this population, rather than from a true increase in transmission. The decrease in rectal gonorrhea positivity that was only observed at the STD clinic might represent a decline in disease in the population or differences across sites in the treatment for gonorrhea, distribution of patient-delivered partner treatment, or underlying behavioral characteristics of patients seeking testing.

The positivity found here for rectal chlamydia (5.9%–10.5%) and rectal gonorrhea (4.7%–10.1%) among males is comparable to the positivity previously reported among MSM in San Francisco and other jurisdictions. Among MSM visiting the San Francisco STD and gay men's health clinics in 2003, the positivity by nucleic acid amplification testing was 7.9% for rectal chlamydia and 6.9% for rectal gonorrhea.[5] Among MSM visiting the San Diego STD clinic from 1997 through 2003, the positivity for rectal gonorrhea was 9.8% by culture.[12]

There are several limitations of this analysis that should be acknowledged. First, all sentinel sites included here were in the public sector, so the trends we report might not apply to rectal infections diagnosed in the private sector. Second, we did not assess whether patients had rectal symptoms, so it is unknown how many of the tests were true screening tests or, in turn, how closely these positivity rates represent the population

prevalence of infection in MSM. Third, our findings might not be generalizable to MSM in other jurisdictions. Finally, clinic-specific protocols for rectal testing—for example, based on recent exposure or other factors—might have differed by site or changed over time.

By using routinely collected data on tests and positivity, sentinel surveillance can provide a more comprehensive understanding of STD testing and trends in a population than passive case reporting alone. Our findings, which indicated an increase in testing and morbidity without a concurrent increase in positivity, suggested that expanded rectal screening among MSM and increased availability of nucleic acid amplification testing in San Francisco since 2005 might have successfully increased chlamydia and gonorrhea case detection. Health departments should make efforts to establish sentinel sites whose routinely collected data on testing and positivity could contribute to a more complete understanding of local STD epidemiology.

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