

# Chlamydial Infections among Young Adults in Baltimore, MD, USA: 1997–98 and 2006–08

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## BACKGROUND

- Untreated infection with *Chlamydia trachomatis* can result in chronic pelvic pain, infertility, and ectopic pregnancy among women. This bacterial infection also serves as a biological cofactor to facilitate transmission of HIV.
- STI surveillance in the U.S. provides estimates of CT as reported to local health departments.
- Population surveys using NAAT assays provide an alternate and complementary estimate of CT prevalence and of the behaviors associated with undiagnosed CT infection.
- Together, these two sources of data provide a more complete profile of the epidemiology of CT, and other STIs, in local populations.

## OBJECTIVES

- To compare population survey estimates of CT infection in Baltimore (MSSP, 2006–08; BSBS, 1997–98) with reported rates from Baltimore City Health Department (BCHD) standard surveillance activities over the same period.

## MONITORING STIS SURVEY PROGRAM (MSSP), 2006–08

- The MSSP tracks the annual prevalence of CT in Baltimore, USA – an urban community with historically high rates of STIs.
- The target population is a probability sample of English-speaking young adults between 15–35 years of age.
- Respondents complete a private telephone audio computer assisted self interview (T-ACASI) and provide a mailed-in urine specimen for CT testing (GenProbe).
- Results are presented from the first two years of the survey.

## BALTIMORE STD AND BEHAVIOR SURVEY (BSBS), 1997–98

- A cross-sectional household survey using ACASI with collection of urine specimens (LCR, Abbott) between January 1997 and September 1998.
- The target population was English-speaking adults ages 18 to 35. Specimens were tested for gonorrhea and chlamydial infection (LCR, Abbott).

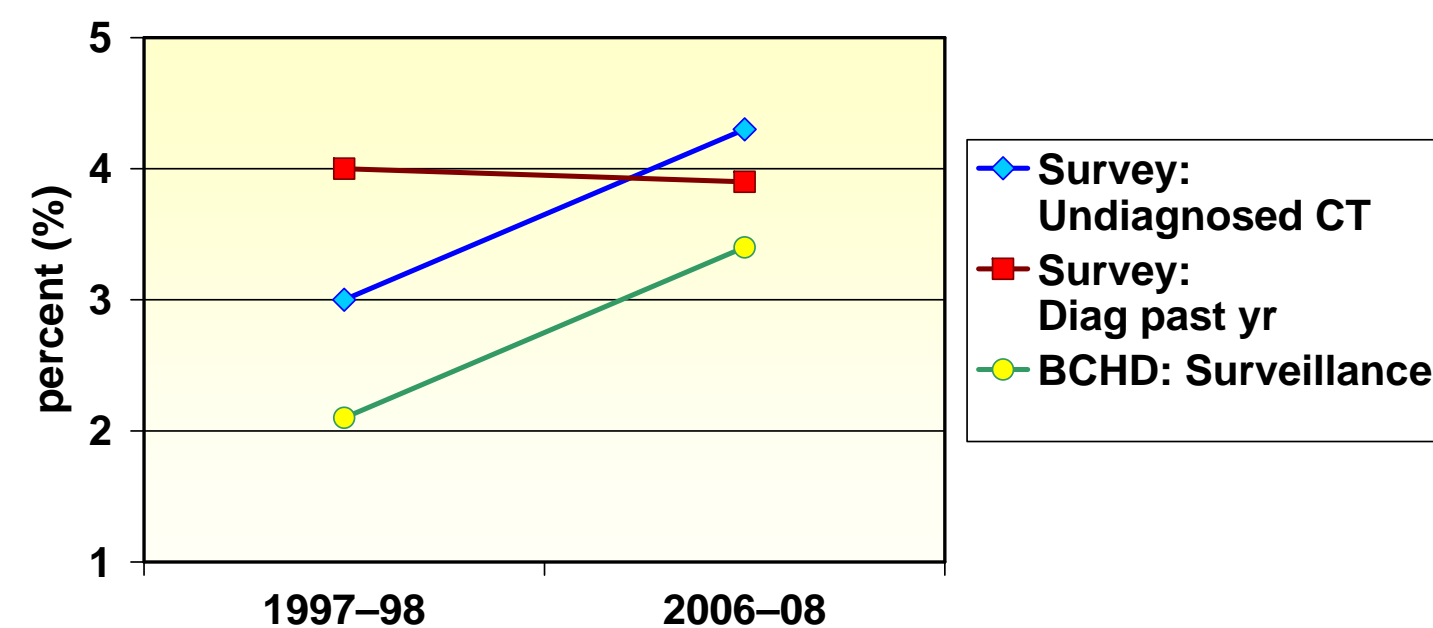
## METHODS

- Survey estimates of CT infection, as measured by: 1) the percentage of specimens testing NAAT positive for CT, and 2) participants' reports of CT infections diagnosed in the 12 months prior to the survey. Estimates are weighted to reflect variation in probabilities of sample selection plus post-stratification weighting adjustments for nonresponse.
- Alternate estimates of CT prevalence are derived from laboratory-diagnosed cases reported to the BCHD (using 1998 and 2008 US Census estimates of the Baltimore population as the denominator).

## RESULTS

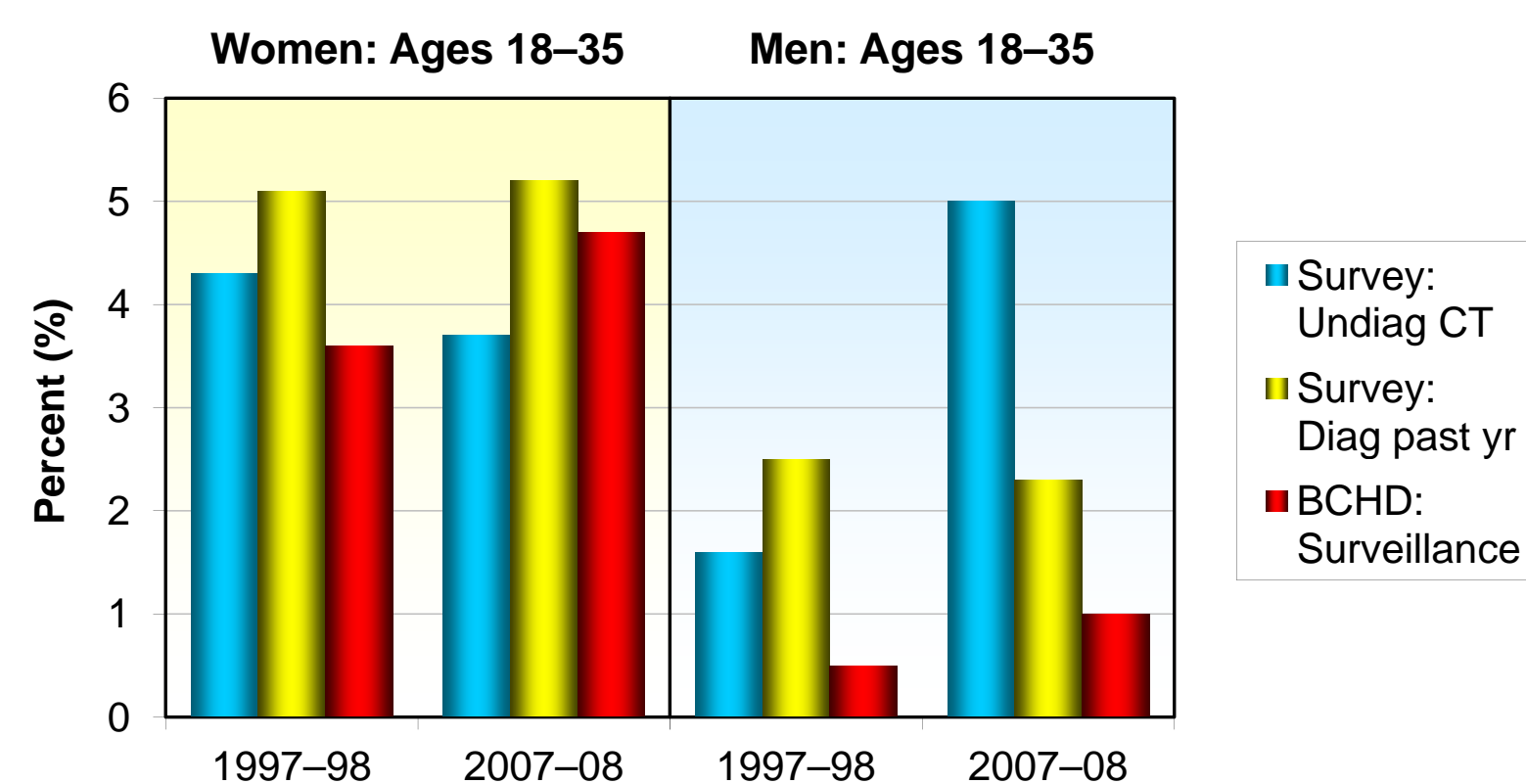
- 2006–08 MSSP: 1,351 of 1,911 (71%) respondents aged 18 to 35 in the MSSP provided specimens suitable for testing.
- 1997–98 BSBS: Interviews were completed with 728 eligible respondents in the BSBS and 579 (80%) provided specimens.

Figure 1: Estimates of chlamydial infection, ages 18–35 in Baltimore: 1997–98 and 2006–08



- Survey estimates of current, undiagnosed CT and of CT diagnoses in the past year were higher than BCHD reports of diagnosed infections in both time periods.
- CT infections were higher in 2006–08 than in 1997–98
  - A current CT infection was detected among 3% of BSBS respondents in 1997–98, compared to 4.3% of MSSP respondents in 2006–08
  - 2.1% of 18–35 year-olds were diagnosed with CT and reported to the BCHD in 1997, compared to 3.4% in 2007
  - 4% of 18–35 year-olds in 1997–98 and 3.9% in 2006–08 reported a CT diagnosis in the past year

Figure 2: Estimates of CT in Baltimore by Sex: 1997–98 and 2007–08



- Estimates of chlamydial infection varied by sex
  - In general, estimates of CT (survey and BCHD reports) were higher among women than men
  - In 2007–08, estimates of current undiagnosed CT were higher among men (5%) than women (3.7%)
  - Survey estimates of participants' reports of CT diagnosis within the previous year were higher for women, but did not substantially vary by survey

Table 1: Estimates of Baltimore population (18–35) with diagnosed and undiagnosed CT infections, 1997–98 and 2006–08

	Women		Men		Total	
	No. (SE)	%	No. (SE)	%	No. (SE)	%
<b>BCHD reports of diagnosed CT</b>						
1998	3,255	3.6	391	0.5	3,646	2.1
2008	4,737	5.4	940	1.2	5,677	3.4
<b>Survey estimates of current CT</b>						
BSBS: 1997–98	3,907 (1363)	4.3	1,336 (501)	1.6	5,231 (1395)	3.0
MSSP: 2006–08	3,270 (663)	3.7	4,027 (1007)	5.0	7,264 (1182)	4.3

- Overall 2,000 more CT infections were diagnosed and reported to the BCHD in 2008 than in 1998; the majority of these infections were reported among women (Table 1).
- Our survey estimates suggest that the total number of current and undiagnosed CT infections exceeded the number of diagnosed infections during both survey periods.
- The divergence in BCHD and survey estimates was most striking for men. In 2008, 940 men (1.2%) were diagnosed with CT whereas the MSSP estimates that 4,027 men ages 18 to 35 (5%) had a current untreated CT infection.
- Among women in 2008, there were fewer estimated undiagnosed infections than diagnosed infections. This may reflect the city's more intensive screening efforts among women.

## CONCLUSIONS

- Chlamydial infections appear to have increased moderately across the last decade among young adults in Baltimore.
- Recent active survey methods suggest an equal burden of undiagnosed CT infection in men and women, in contrast to passive reporting systems or self-reported diagnosis that indicate higher levels of CT infection among women.
- The MSSP demonstrates a new and complementary approach to traditional surveillance for understanding the epidemiology of chlamydial infections in the general population.