Estimated Prevalence of *T. vaginalis* and *C. trachomatis* among Young Adults: A Local Perspective

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1. Background

Untreated trichomonas vaginalis (TV) and chlamydia trachomatis (CT) infections increase the risk of pelvic inflammatory disease and other adverse pregnancy outcomes in women and can lead to subsequent infection in sexual partners. Routine screening of chlamydial infection is recommended for US women under 25 years of age. Trichomoniasis surveillance does not exist for national or local populations. Many infections go undetected because symptoms are often mild or absent.

Information on the local epidemiology of these STIs is less well understood. STI epidemics are local phenomena, evolving within communities. We present estimates of CT and TV prevalence and associated demographic and behavioral characteristics from the Monitoring STIs Survey Program (MSSP).

2. Methods

The MSSP collected survey data and specimens that were tested using nucleic acid amplification tests to monitor TV and CT in 2006–2009 among a probability sample of young adults (N = 2,936) in Baltimore MD—a metropolitan area with both a historically high incidence of diagnosed STIs based on reports to public health authorities and a high prevalence of undiagnosed STIs based on evidence from past population surveys (CDC, 2013; Turner et al., 2002).

MSSP 2006–2009

- Target population was a probability sample of young adults aged 15 to 35 years residing in Baltimore households with a landline telephone
- Respondents completed a private telephone interview and mailed in a urine specimen for STI testing
- TV nucleic acids were detected by transcription-mediated amplification using Gen-Probe analyte-specific reagents. The same processed urine specimen was used to detect CT using the APTIMA Combo2 assay (Gen-Probe).

All study procedures were approved by the Institutional Review Boards of the Research Triangle Institute, the University of North Carolina at Chapel Hill, the University of Massachusetts at Boston, and the Johns Hopkins Medical Institutions (BSBS and MSSP).

3. Analysis

Our statistical analyses of the estimated prevalence of infections use survey data from respondents who provided biospecimens for STI testing. Survey weights were developed to account for differing probabilities of selection and nonresponse (survey and specimen). Survey estimates of infection prevalence were derived using sample weights and tabulated by sex, age, and race/ethnicity. Odds ratios and adjusted odds ratios for associations of demographic and behavioral characteristics of respondents with infection status were estimated using logistic regression. All statistical analyses accounted for the complex sample design of the MSSP using the *svy* algorithm in Stata 12.

4. Results

Interviews were completed with 2,936 respondents (59% of eligibles); 2,136 (73%) provided specimens for STI testing.

- The overall estimated prevalence of TV was 7.5% (95% CI 6.2, 9.1); infection was significantly higher among women (11.8%) than men (2.9%, OR = 4.4, 95% CI 2.4, 8.3). Among Black females, the estimated prevalence was 16.1% (95% CI 13.0, 19.8, **Table 1**).
- In contrast, chlamydial infection was less prevalent overall, 3.9% (95% CI 2.9, 5.2), and higher among men (4.5%, 95% CI 2.8, 6.9) than women (3.4%, 95% CI 2.4, 4.8). Estimates of CT infection decreased with increasing age ($p = 0.003$, **Figure 1**).
- Both women and men who had a current chlamydial infection were much more likely to also have trichomoniasis. Among women, 31% of those with chlamydial infection also had a trichomoniasis infection compared to 11.1% of women with no chlamydial infection (OR = 3.6, 95% CI 1.6, 8.2, $p < 0.002$, **Figure 2**). Similarly for men, 17% of those with chlamydial infection also had trichomoniasis compared to 2% of other men (OR = 9.0, 95% CI 1.9, 44.3, $p = 0.007$). These effects persisted after adjusting for race, age, and marital status (adj OR = 2.9, 95% CI 1.3, 6.6, $p = 0.010$ for women, and OR = 5.3, 95 % CI 1.1, 26.4, $p = 0.044$ for men).
- The majority of TV and CT infections were asymptomatic. Of persons with trichomoniasis, 98.5% of men (95% CI: 89.1, 99.8) and 73.3% of women (95% CI 62.0, 82.2) reported neither dysuria nor discharge in the three months prior to the survey (**Table 2**).

Table 1

Prevalence of *T. vaginalis* (TV) and *C. trachomatis* (CT) infection by race/ethnicity and sex: 2006–2009 MSSP

Race/ethnicity and sex	*T. vaginalis*		*C. trachomatis*		Base N (unweighted)
	%	95% CI	%	95% CI	
Black Female	16.1	(13.0, 19.8)	4.8	(3.3, 6.9)	845
Black Male	5.0	(2.8, 8.8)	7.4	(4.7, 11.6)	454
Non-Black Female	4.1	(2.3, 7.0)	0.9	(0.3, 2.6)	477
Non-Black Male	0.2	(0.0, 1.0)	0.6	(0.0, 4.0)	344
TOTAL	**7.5**	**(6.2, 9.1)**	**3.9**	**(2.9, 5.2)**	**2,120**

Figure 1

Prevalence of CT and TV by age

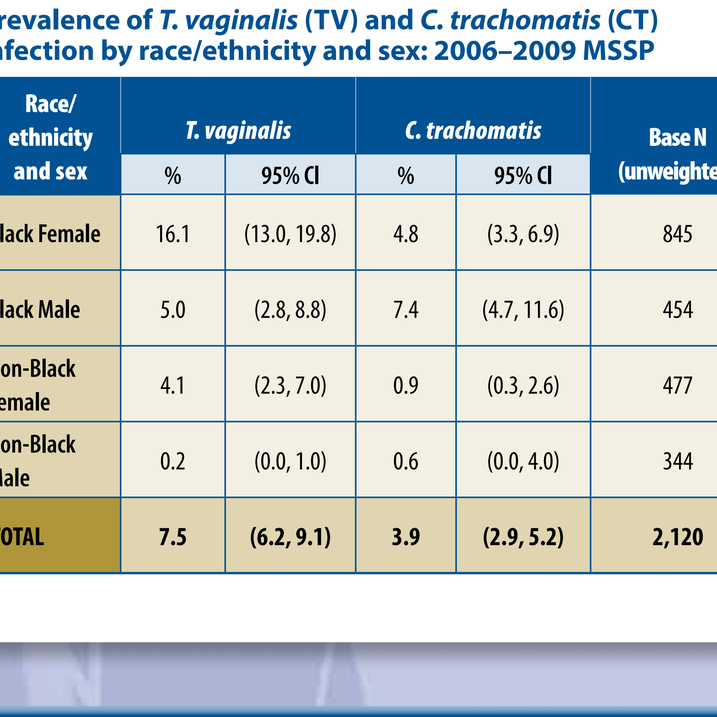

Figure 2

Prevalence of TV by CT status and sex

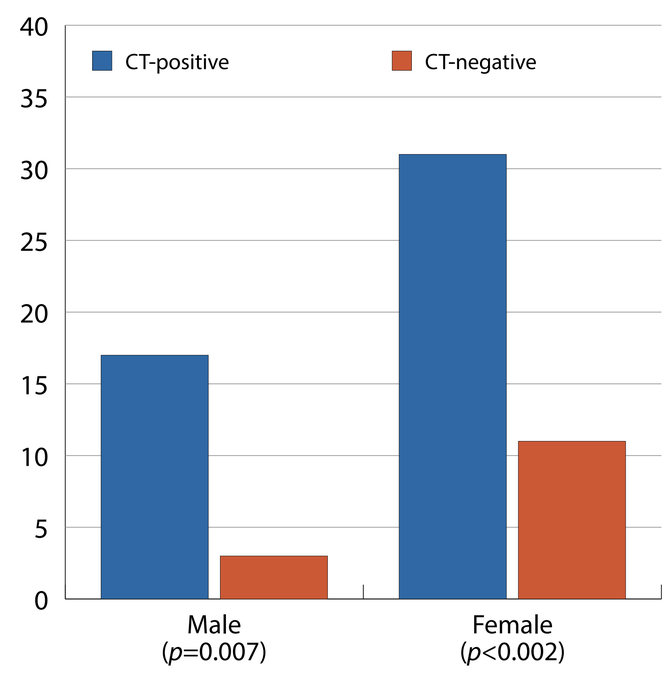

Table 2

Presence and absence of reported symptoms by gender and infection

Gender and infection status	Symptoms			No symptoms		
	%	95% CI	N (unweighted)	%	95% CI	N (unweighted)
Men and women	**3.9**	**(2.9, 5.2)**	**273**	**96.1**	**(94.8, 97.1)**	**1,846**
▪ With clamydial infection	5.1	(2.9, 8.9)	15	94.9	(91.1, 97.1)	55
▪ No clamydial infection	3.7	(2.7, 5.2)	258	96.3	(94.8, 97.3)	1,791
Men and women	**11.1**	**(9.6, 12.8)**	**273**	**88.9**	**(87.2, 90.4)**	**1,846**
▪ With trichomoniasis	22.0	(14.8, 31.5)	38	78.0	(68.5, 85.2)	118
▪ Without trichomoniasis	10.2	(8.7, 11.9)	235	89.8	(88.1, 91.3)	1,728

Note: Symptoms are dysuria (burning sensation while urinating) and discharge in the 3 months preceding the survey. Subjects were coded positive for symptoms if they reported either or both symptoms.

5. Conclusion

Data from the MSSP suggest that trichomoniasis and chlamydial infection are prevalent in the Baltimore population—particularly among Black women. Coinfections with TV and CT are common. Public health surveillance that focuses on CT infection may consider screening other STIs, including TV, in local populations with elevated risk of infection to reduce STI morbidity.

References

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More Information

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